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ABSTRACT

Three studies were conducted to explore the relationship between social skills instruction and the maintenance and generalization of skills to post-school environments. Three adult women with severe disabilities in their last year of school participated in the studies. The first study addressed the effectiveness of an instructional package to improve social skills and to increase generalization and maintenance of the skills. Skills that had been observed to elicit reinforcement in environments that the students were expected to use following graduation were selected for instruction. Students improved their performance of target skills in the instructional setting. Maintenance and generalization to unstructured social environments were variable. The second study addressed the effectiveness of a "loose" training procedure to facilitate generalization to natural environments. The procedure was effective in improving student performance and in generalization to non-training environments; however, training contingencies were needed to maintain generalization. Interviews were conducted with teachers, employers, co-workers, and acquaintances regarding the social validity of the procedures and the results. The final study addressed variables that may affect social interaction. Interview and observational data were analyzed for content. Results indicated that performance in social interactions may be affected by the perceptions of the interaction partner, the type of the interaction, the settings where the interactions occur, and the relationship between the interactors. Appendices contain observation and interview forms, case examples, coding procedures, and other administrative materials. (Approximately 100 references) (Author/PB)

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Maintenance and Generalization of Social Skills in Adults with Severe Disabilities

Final Project Report
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MAINTENANCE AND GENERALIZATION OF SOCIAL SKILLS IN ADULTS WITH SEVERE DISABILITIES

Abstract

Three studies were conducted to explore the relationship between social skills instruction and the maintenance and generalization of skills to post-school environments. Three adult women with severe disabilities and in their last year of school participated in the studies. The first study addressed the effectiveness of an instructional package to improve social skills and to increase generalization and maintenance of the skills. Skills that had been observed to elicit reinforcement in environments that the students were expected to use following graduation were selected for instruction. The students were instructed though a modified general case procedure that utilized time delay, multiple exemplars, and prompts and feedback to maintain conversations. Student's improved their performance of target skills in the instructional setting and to generalization probes as demonstrated through a multiple probe design across skills and across students. Maintenance and generalization to unstructured social environments was variable. The second study addressed the effectiveness of a "loose" training procedure to facilitate generalization to natural environments. The procedure was effective in improving student performance and in generalization to non-training environments. However, training contingencies were needed to maintain generalization. Interviews were conducted with teachers, employers, co-workers, and acquaintances regarding the social validity of the procedures and the results. The final study addressed the variables that may affect social interaction. Interview and observational data were content analyzed. Results indicated that performance in social interactions may be affected by the perceptions of the interaction partner, the type of the interaction, the settings where interactions occur, and the relationship between the interactors. Issues related to social skills instruction, the nature of social interaction, and the interactions between context and research results are discussed in addition to implications and needs for further research. The issues of quality of life, program values and goals, perceptions of interaction partners, and combined methodology are addressed.

Table of Contents

Abstract iii

Acknowledgements vii

Chapter 1: Introduction 1

Chapter 2: Review of the Literature 16

Chapter 3: Methods 48

Chapter 4: Results 123

Chapter 5: Discussion 353

References 381

Appendix A:

Letters and Participant Consent Forms 399

Appendix B:

Interview Guides and Summary Forms 404

Appendix C:

General Case Examples for Social Skills Instruction 435

Appendix D:

Interaction Generalization Observation Form, Directions, and Summary Forms 458

Appendix E:

Definitions for Coding Observation Data 472

Appendix F:

Audit Report and Procedures 512

Appendix G:

Sample Reliability Observations 522

Appendix H:

Coding Reliability for Topic of Discussion 560

For the women represented by
Doris, Trudy, and Wendy

> Until the lions write their
> own history, the heros will
> always be hunters.
> (African Proverb)

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Chapter 1

INTRODUCTION

Persons with severe disabilities must learn to perform a complex set of behaviors in response to a wide variety of stimuli because these skills are related to success in community placements. However, persons with mental retardation are distinguished by inadequate social functioning by definition (American Association on Mental Deficiency, 1977; American Psychological Association, 1968). Historically, social skill deficits have been used to define disabilities. The more environments in which an individual can interact with success, the less handicapped she will be perceived to be. Additionally, as the complexity of interaction increases, the level of handicap decreases (Brinker & Thorpe, 1984).

Persons with severe disabilities need to perform social skills in a variety of settings, but must overcome the characteristic deficits they have in both social skills and generalization. Social skills are particularly important for the adjustment of persons with severe disabilities to their communities. A lack of competency in social skills interferes with both vocational success and community integration (Gollay, Freedman, Wyngaarden & Kurtz, 1978; Schalock, Harper & Cower, 1981; Martin, Rusch, Lagomarcino, & Chadsey-Rusch, 1986; Wacker, 1984). Yet, the instruction of social skills which transfer and maintain in post-school years has not been examined. After reviewing educational indexes, texts, and reviews, only eight studies were located that were concerned specifically with the generalization of social skills in adults having severe disabilities.

These studies, which are discussed in detail in Chapter Two, leave several issues concerning interaction in social environments unresolved. Six of the studies observed specific discrete behaviors (e.g. waving) instead of the complex discriminations and responses required by natural social interactions. Six studies failed to examine performance under natural conditions (e.g. at the shopping mall with no prompts or reinforcement) and only one study examined performance in integrated (non-disabled individuals present in natural proportions) natural settings. Also, seven of the studies continued the use of artificial cues (e. g. teacher prompts), artificial consequences (e.g. food reinforcers), and/or training conditions while measuring generalization. Only three studies examined generalized responding in unstructured settings and of these, only one examined behavior in an integrated setting. In the two studies that examined maintenance, the majority of subjects did not maintain the behavior.

Adults with severe disabilities need to develop social skills that generalize to new environments if they are to participate in their communities. Current "best practice" strategies assume that these individuals will spend post-school years in integrated community, domestic, vocational, and recreational environments. Skills selected for instruction during school years should be derived from the skills required to function in these environments (Brown, Branston, Hamre-Nietupski, Pumpian, Certo & Gruenwald, 1979; Sailor & Guess, 1983). If individuals can participate in social interactions in different settings and adapt their behavior to new contexts, they will be able to participate more fully in their communities.

The ability to participate in social interaction requires the mastery of a complex set of skills. Shumaker and Hazel (1984) define social behavior as "any cognitive function or overt behavior in which an individual engages while interacting with another person or persons" (p. 422). In order to perform social skills, an agent must: (a) discriminate between situations in which social behavior is appropriate, (b) determine which skills are appropriate for the situation, (c) perform the skills fluently in appropriate combinations, and (d) accurately perceive other persons' verbal and nonverbal cues.

Overview of the Research

Issues Addressed

Research dealing specifically with social skill generalization and maintenance in adults with severe disabilities is sparse and leaves questions unanswered. More research is needed to address the complexity of social interaction, performance under natural conditions, and the generalization and maintenance of skills beyond school environments in adults with severe disabilities. This research addressed the problems by teaching complex social skills, which were selected to receive reinforcement in natural settings and therefore be more likely to generalize and be maintained in post-school settings. The skills were taught to secondary students with severe disabilities so that post-graduation generalization could be evaluated. Strategies that facilitated response and stimulus generalization were used to teach students functional social skills. Use of the skills was assessed in natural settings over the nine months following the target students' graduation to determine whether or not skills generalized and were maintained over time. Strategies to mediate generalization were evaluated in addition to the basic training strategy. If students with severe disabilities could be taught skills which generalize, time could be saved in teaching each new skill. In addition, the probability of functioning in natural community environments where stimuli are always changing would be increased. For one student, who had difficulty with generalization, a follow-up program to facilitate generalization was implemented.

Research Questions

Three questions were addressed by this research. First, would skills selected to be functional and taught in ways that promote generalization, generalize to and be maintained in other settings? Secondly, could "loose" training be used to mediate generalization of social skills to integrated community settings? And finally, what transpires in social interactions among individuals with disabilities and their non-disabled co-workers and friends in unstructured settings? Thorough description of what occurs in social interactions clarified some of the variables that affect the maintenance and generalization of social skills.

Research Hypotheses

The hypotheses related to the research questions were:

1. The selection of skills that have been demonstrated to be functional in target settings and taught to students using general case programming and systematically fading prompts and reinforcement will facilitate generalization of social skills to post-

school environments in adults with severe disabilities.

2. General case instruction, augmented by "loose" training to mediate generalization, will facilitate generalization in students who do not generalize following general case instruction alone.

3. When individuals generalize to new stimuli and adapt responses in the training environment, a simultaneous increase in the amount and duration of social interaction will occur in unstructured environments.

4. The amount and duration of social interaction will be maintained or will increase over the nine months following graduation.

Additionally, the observations guided the development of hypotheses for future research.

Independent Variables

The procedures and methods are described more fully in Chapter Three.

General case instruction. The training procedure consisted of four elements. First, the skills for instruction were selected through observations of social interaction in generalization settings and interviews of consumers in those settings. This procedure assured that the skills for instruction were functional in the environments that the students would use following graduation. Secondly, the instructional procedure utilized strategies that had been shown to be effective in facilitating generalization. These procedures included: (a) general case instruction; (b) multiple exemplars (i.e., multiple peers for conversation instruction) (c) systematic fading of prompts and reinforcement to natural conditions; and (d) reinforcement of generalization to unstructured settings. Thirdly, maintenance trials for instructional cases (i.e., stimuli selected to elicit the specific skill responses) were conducted throughout the Intervention Phases. Follow-up instruction was provided as needed. The final component of social skills instruction was participation in a conversation. Students were prompted to continue taking turns in the conversation and to use the skills selected for instruction as appropriate. Procedures were demonstrated to be effective through a multiple probe design across skills and across students (Horner & Baer, 1978).

"Loose" training. One of the students continued to exhibit social skill deficits in the first follow-up phase of the study. For this student a "loose" training procedure was used to facilitate generalization of appropriate behaviors to community environments. The student was instructed in three skills: (a) maintaining eye contact; (b) responding to social bids; and (c) responding to social bids with three word phrases. The method was "loose" because specific stimuli and prompts were not defined. Instruction was conducted in community settings (e.g., stores and restaurants) and the stimuli were whatever bids occurred naturally in the environment. Prompts were selected from possible appropriate responses to the stimuli. Additionally, a token economy was used for reinforcement of correct responses. The effectiveness of the training program was demonstrated through an ABA withdrawal design (Cooper, Heron, & Heward, 1987).

Descriptive study. A descriptive study was implemented to address questions about social interactions among persons with disabilities and non-disabled individuals in unstructured settings. Information gathered to describe and explain the events in these types of interactions added to the understanding of ways to improve the quality of social interactions for persons with disabilities. Information was collected through: (a) structured observations of interactions which were recorded in transcripts; (b) informal observations of interactions recorded in fieldnotes; (c) formal interviews with teachers, parents, co-workers, and acquaintances of the participating students; and (d) informal contacts with persons familiar with the students' social interactions recorded in fieldnotes. The design of this study was naturalistic inquiry and thus it emerged over time. The method of observation was revised during the study to improve accuracy of transcription. Originally, observations were expected to be completed when students participated in activities with their non-disabled co-workers and friends. As the study progressed, the author found that the students had limited opportunities for interactions in integrated settings with friends. Therefore, opportunities for observations were arranged by the author and research assistants. Questions and hypotheses were developed as the study progressed. As new questions emerged, data were evaluated and new data collected to address the question.

Dependent Variables

General case instruction. The instructional programs was assessed by: (a) frequency of correct responding to general case instruction; (b) frequency of correct responding to maintenance trials; (c) cumulative frequency of generalization to novel "cases"; (d) rate of generalization to unstructured social interactions; and (e) duration and frequency of social interactions. Additionally, social validation interviews were conducted with employers, teachers, parents, co-workers and acquaintances.

"Loose" training. The effectiveness of the "loose" training program was assessed through: (a) the percentage of correct responses to trials in the training context;

and (b) the percentage of correct responses to generalization trials. Additional generalization was measured through the frequency and duration of social interaction in unstructured settings. Social validation interviews also were conducted for this study.

Descriptive study. Data for this study consisted of observations of social interactions in unstructured leisure environments and interviews with others familiar with the student. Observations and interviews were completed over 18 months. The author and research assistants completed fieldnotes after interactions with the students and after interactions with others in the students environments. The author also participated in some instructional team planning meetings regarding the students and completed fieldnotes after these contacts.

Overview of the Context

A number of individuals were involved in this study in a variety of roles. Additionally, research was conducted in a range of settings across a year and a half. This overview is intended to help the reader follow the inter-relationships among study participants, research environments and time lines. Three students participated in the study. They are referred to as Doris, Trudy, and Wendy. The three women all attended the same high school. The program for students with severe disabilities in this district served students in a five county area. The high school was located on the outskirts of a medium-sized town in the mid-atlantic region. Doris and Wendy were from the home school district living in rural parts of the county. Trudy lived in a small town in a neighboring county.

The time line in Figure 1.1 illustrates the phases of the studies. During the first month of the research, preliminary contacts were made and participation was confirmed. Then the preliminary interviews and observations were conducted. The general case instruction procedure was implemented in the second to tenth months. Intervention began first with Doris in the third month, second with Trudy in the sixth month, and finally with Wendy in the seventh month. The tenth month of the study was the end of the school year for the students. Doris and Trudy graduated at that time. Wendy continued in school for another year. The first follow-up observation and interviews were conducted for Doris and Trudy during the twelfth to fifteenth month. Wendy continued in instruction during that time. Doris exhibited social skill deficits in the generalization observations and the behaviors were confirmed in the interviews. Therefore, Doris participated in the "loose" training program to facilitate generalization duirng the fifteenth to the eighteenth months of the study. Trudy participated in a second set of follow-up interviews and observations and Wendy participated in the first follow-up phase during

Months

|----1----|----2----|----3----|----4----|----5----|----6----|----7----|----8----|----9----|----10----|

Doris:

Preliminary | Baseline |------------------------Intervention--------------------------------|

Trudy:

Preliminary |---------------Baseline-----------------|-----------Intervention------------|

Wendy:

Preliminary |------------------Baseline-----------------------|-------Intervention--------|

Months

|----11----|----12----|----13----|----14----|----15----|----16----|----17----|----18----|

Doris:

|--------First Follow-up------|---------Second Intervention--------|

20

Trudy:

|--------First Follow-up---------| |--Second Follow-up--|

21

Wendy:

|-----Continued Intervention-----| |---First Follow-up--|

Figure 1.1. Time line for implementation of social skills research.

that time. Data collection and analysis for the descriptive study were conducted throughout the 18 months.

Observations were conducted in a variety of environments. In the Preliminary Phase, Doris was receiving vocational instruction in a Chain Hotel in the laundry room. Some preliminary observations were conducted in the laundry room and the employee break room. By the time of the Baseline Phase, Doris had been placed at a sheltered workshop for evaluation. Doris was observed in a lunch room and in a vending area at the workshop.

Doris, Wendy, and Trudy received some instruction at school during the early phases of the study. Observations were conducted in the classroom during leisure time, during games, and during lunch in the school cafeteria at the high school. Wendy was also observed while receiving community based instruction at a fast food restaurant.

Eventually, Wendy and Trudy received all of their instruction at a Franchise Motel. They were observed in the laundry room and the break area at the motel. Also, there was a deli and laundromat, Bubbles, next to the motel. Trudy and Wendy sometimes went to the deli during their breaks and observations were completed then. Also, some observations were arranged at the deli during the students' lunch time.

Parks, restaurants, and shopping environments were targeted for generalization. These were the environments that parents expected the students to use after graduation according to the preliminary interviews. Observations were conducted at school picnics and at picnics arranged by civic clubs. An additional observation of Trudy was conducted during physical education on a fitness trail. The restaurants where observations were conducted included three different fast food hamburger chain restaurants, the deli next to the Franchise Motel; a pizza parlor, and a coffee shop. Shopping observations were completed at a shopping mall, in a drugstore, in two grocery stores, a clothing boutique, and a discount department store.

There were numerous participants in the study in addition to the target students. Teachers, co-workers, high school students, and employers participated in the interviews and in the observations as interaction partners.

The student's parents and guardians participated in interviews. On some occasions others were present during interviews. These included: (a) Doris's niece; (b) Doris's sister; (c) Doris's sister-in-law; and (d) a co-worker of Trudy's guardian who also knew Trudy.

There were three classroom teachers and one long term substitute teacher involved over the course of the study. The first teacher, Joyce, was the classroom teacher for months one through three. Joyce became the vocational coordinator for the program and was still involved with Trudy and Wendy at their work site through the tenth month of the study. Joyce was replaced by Dave, but a substitute teaching assistant, Emily, conducted most of the instruction for Trudy and Wendy during months four and five. Dave completed most of the instruction for the rest of the school year. Bob was the classroom teacher for Wendy during the twelfth to the eighteenth month of the study. Additionally, three teaching assistants and two substitutes took part in instruction as conversation partners. Still other teachers, assistants, and substitutes were present during the generalization observations.

Doris received instruction from workshop staff rather than school staff. Four different workshop supervisors and assistant supervisors were involved with Doris at different times. There were as many as twenty different workshop clients, Doris's co-workers, present in different generalization observations as potential interaction partners.

Trudy and Wendy received vocational instruction at the same site, Franchise Motel, and Trudy was employed there during the follow-up phases. Much of their work was completed in a laundry room behind the employer's office and the front desk. Therefore, Trudy and Wendy were observed interacting with the employer, two front desk employees, approximately 12 housekeeping staff, and one maintenance staff person. The students also had opportunities to interact with customers at the Franchise Motel.

Observations in the restaurant and shopping environments were arranged by the author and research assistants. Two research assistants were employed during the study. They are referred to as Kelly and Nelda. Kelly worked on the studies during the first 10 months. Nelda was hired in the twelfth month. A graduate student in special education, Annie, was introduced to the students for the purpose of providing another interaction partner. The author, Kelly, Nelda, and Annie all participated in the generalization observations.

This overview of the time line, environments, and participants should assist the reader in understanding the development of the procedures and the results of the studies in Chapters Three and Four. The implications of the research results are discussed in Chapter Five.

Chapter 2

REVIEW OF THE LITERATURE

Research dealing specifically with social skill generalization and maintenance in adults with severe disabilities is sparse and leaves questions unanswered. A review of the literature was conducted and resulted in the location of only eight studies addressing the specific problem of generalization of social skills in adults with severe disabilities.

The procedure for the literature review included the examination of: (a) texts (c.f., Certo, Haring, & York, 1984; Horner, Dunlap, & Koegel, 1988; Horner, Meyer & Fredricks, 1986; Wehman, Renzaglia & Bates, 1985); (b) previous literature reviews (Brinker & Thorpe, 1984; Fox, 1989; Gaylord-Ross, Haring & Breen, 1984; Haring, 1991; Kayser & Billingsley, 1987; Schloss, Schloss, Wood & Keil, 1986; Scruggs & Mastropieri, 1984; Stainback & Stainback, 1981; Stainback, Stainback & Strathe, 1983; Stokes & Baer, 1977; Storey, 1987; Wacker, 1984; White, Leiber & Phiefer, 1985); and (c) the Educational Resources Index Clearing (ERIC) House. The descriptors used for the ERIC search were descriptors that were used for articles that were located in texts and previous reviews. "Autism" or "severe disabilities" were used as descriptors in conjunction with each of the following (a) social development; (b) social environment; (c) interpersonal communication; (d) interpersonal relationships; (e) communication skills; (f) interaction; and (g) peer relationship. As a final step the current issues and issues for the preceding 12 months of several journals were reviewed in February, 1991. These journals may have contained articles not yet included in the ERIC Index. The journals included: (a) Journal of the Association for Persons with Severe Handicaps; (b) Journal of the American Association on Mental Retardation; (c) Exceptional Children; (d) Education and Training of the Mentally Retarded; (e) Behavior Disorders; (f) Remedial and Special Education; (g) Research in Developmental Disabilities; (h) Journal of Autism and Developmental Disabilities; and (i) Journal of Abnormal Child Psychology.

The primary research question in the first six of the eight studies concerned communication. These studies are included in this review because the target skills were directly applicable to enhanced social functioning. For example, participation in choosing social activities, question-asking behaviors, and encouraging team mates may extend participation in social settings.

One of these studies concerning communication examined the ability of four adults with severe mental retardation, living in an institution, to generalize manual signs for preferred social activities across persons and settings (Duker & Morsink, 1984). Two study participants were trained to produce signs in response to verbal cues and two were trained to respond to visual presentations of the objects. In training, the participants were allowed to participate in the activity after production of the sign. Generalization probes were presented in a classroom other than the training room and on the ward where the subjects lived. The subjects did not receive reinforcement during probes and performance on the probes varied across subjects and signs. Maintenance probes also resulted in variable responding. Several factors limit the conclusions which can be drawn from this experiment. Most important, the adults were trained to request desired activities, but the requests were not meaningful for them in the natural environment because they were denied access to the requested activity. The probes for generalization were actually extinction procedures. Additionally, the stimuli were artificial. Rather than a spontaneous desire for an item, the individuals responded to trainer and staff presentation of the item or verbal request to name item. No determination can be made about the functionality of the response, because the participants were not observed using the requests in natural settings where someone would respond to the request.

In the next study, eight residents of a residential treatment center having severe mental retardation generalized question-asking skills across time and setting. The study was conducted 2 1/2 years after the individuals had mastered the skill in a structured language program (Warren, Baxter, Anderson, Marshall & Baer, 1981). The residents could receive a reinforcer from a paper bag if they asked what was in the bag. Two of the adults generalized immediately, two of the adults generalized after observation of peers using the skill and four of the adults needed to repeat the original training program before generalization occurred. The ability to generalize was related to mean length of utterance (MLU). Those individuals with greater MLU scores were more likely to generalize than those with lower MLU scores. This study, as in the preceding one, required the individuals to respond to an artificial cue. Spontaneous questioning was not examined. However, the experiment suggested that there is variance in the ability to generalize in this population and that some persons with severe disabilities may require training to generalize. This variability may be related to level of mastery or fluency of a specific skill.

Reid and Hurlbut (1977) were able to train four adults with physical disabilities and severe mental retardation to communicate their leisure time desires to a variety of persons. These individuals were taught the meaning of five pictures on a communication board, each picture representing locations in the institution. All of the adults were then able to communicate to the staff and volunteers where they wished to go during their free time. This generalization across persons yielded a skill which was functional for these adults in their residence.

In the fourth study of generalization of social communication, Keogh, Whitman, Beeman, Halligan, and Starzynski (1987) taught a woman with severe mental retardation and a hearing loss to participate in verbal and motor exchanges while preparing a cracker and juice snack. The skills were embedded into a task analysis that was used to instruct the skills during interaction with a staff member. Generalization was assessed by observing the woman prepare snacks with a boy having autism who had completed the same training program. Generalization of correct responses was variable and low for the adult participant. The study did not address response generalization. This study and the three preceding experiments were implemented in segregated settings. The next three studies reviewed examined generalization of social skills in the community.

Lagomarcino, Reid, Ivanic, & Faw (1984) trained five adolescents and adults with severe mental retardation, who lived in an institution, to dance in three different settings using five different trainers. Then they measured the students' performance at a dance for community residents with mental retardation held at a recreation center. The staff at the recreation center required training to support the individuals' dance skills before generalization occurred. This group, like the majority of the adults in the Warren et al. (1981) study, required support in the form of additional training and reinforcement in the generalization environment. The experiment did not consider any other social behaviors associated with dancing, such as asking a partner to dance or conversing between dances.

Hill, Wehman, & Horst (1982) evaluated social skills related to a leisure activity, pinball machine play. They discovered two students' stereotypic behaviors were receiving negative attention in a video arcade during training in pinball play. The experimenters implemented a modeling procedure to train "looking cool" while waiting for a turn at pinball. When the individuals met criterion they received a soda after the pinball training session. This behavior generalized successfully to pinball play sessions in the classroom under the same conditions. No conclusions can be made about the students' performance when the primary reinforcers were absent.

The final two studies addressed generalized responding in non-instructional environments. Storey and Gaylord-Ross (1987) taught three adolescents and one adult with moderate to severe disabilities to make positive statements to peers through the use of role playing, graphic feedback, self-monitoring, and contingent reinforcement. Positive statements increased and negative statements decreased. Skills did not generalize to a card game. Follow-up experiments with adolescents indicated that self-monitoring alone maintained the higher rates of positive statements for some participants while other participants needed contingent reinforcement in addition to self-monitoring in order to maintain the training rates of behavior.

The final study also examined generalized social responding, but in a segregated setting. Foxx, McMorrow, Bittle, & Ness (1986) taught three female residents of a group home (one with severe retardation) appropriate social responses to 48 different situations in a game format. Because data were reported individually, effects on the adult with severe disabilities could be assessed. Generalization was measured by recording verbal interactions during 10 minute intervals in two settings. The number of spontaneous responses among the training group was counted in a lounge area and among untrained peers during lunch. For the woman with severe retardation and one other participant, generalization occurred only in the training group condition. Generalization did not occur until after training was completed. Generalization increased over the 15 week follow-up period. This study examined general social responding in natural settings and examined maintenance over three months. Individuals with limited expressive language were excluded from participation in the instructional program. The results indicated that a social skills training program can increase general social interaction in an unstructured setting for students' with expressive language. The study did not address generalization to integrated settings or generalization of social skills in individuals with language deficits.

Current research on generalization of social skills in the post-school environment leaves several problems unresolved. These include:

1. Social skills complexity. All but two of the experiments observed specific discrete behaviors. Research on complex discriminations and responses involved in natural social interactions is needed.
2. Responding in the natural environment. Only two (Hill et al., 1982; Storey & Gaylord-Ross, 1987) of the studies examined performance of social skills under natural conditions in an integrated setting. The other study that examined student performance under natural conditions were conducted in segregated (i.e., all participants were disabled) settings (Foxx et al., 1986). Seven of the eight studies involved artificial cues (Duker & Morsink, 1984; Warren et

al., 1981), maintaining some aspect of training conditions (Foxx et al., 1986; Lagomarcino et al., 1984), and/or artificial consequences (Duker & Morsink, 1984; Hill et al., 1982; Storey & Gaylord-Ross, 1987). Research concerning responding in natural settings and in response to naturally occurring stimuli and consequences is needed.

3. Generalization. Only two of the experiments measured generalization in integrated community settings (Lagomarcino et al., 1984; Storey & Gaylord-Ross, 1987). Additionally, one of the studies did not result in generalization (Duker & Morsink, 1984) and other studies resulted in variable generalization (Keogh et al., 1987; Lagomarcino et al., 1984; Storey & Gaylord-Ross, 1987; Warren et al., 1981) Further investigation of social interaction generalization to integrated vocational and community places is needed.

4. Maintenance. Finally, the four studies that examined maintenance of the skill were inconclusive. In two, most of the study participants were unsuccessful without intervention (Storey & Galord-Ross, 1987; Warren et al., 1981) and in the other study, one participant did not maintain the skill and two others maintained the skill in one environment and not another (Reid & Hurlbut, 1977).

The participants in the Foxx et al. (1986) study continued to show an increase in responding with instructional group during maintenance.

Research with adult populations and in integrated community settings is limited. However, the above problems have been addressed in research involving other populations (e.g., different age groups or disabling conditions) or in other settings (e.g., in schools). These studies are discussed below in relation to each of the four problem areas. Successful techniques from this literature can provide guidance in the selection of strategies for teaching social skills to secondary students with severe disabilities. Then the effect on transfer and maintenance of skills to post-school environments can be examined.

Social Skills Complexity

The complexity of social skills creates difficulty for both training and measurement. Individuals must be able to perform a chain of complex behaviors and adapt these skills to a variety of cues. Strategies for training that deal with the complexity of the behavior include training or consequating broad classes of behavior or task analyzing a chain of behaviors. Measurement that addresses the frequency includes analyzing transcripts, counting the frequency of any appropriate social responses, and ranking ability level in different classes of behavior.

Training Methods

Two techniques have been used successfully to train persons with severe disabilities to perform complex behaviors. One method shown to be successful in training children, adolescents, and adults with severe disabilities is treatment of social behavior as a response class. In the first two studies that are described, all social behaviors were treated as one class. Peterson, Austen, and Lang (1979) reinforced any social behavior that occurred (motor, gesture, or vocal) among three adolescents with multiple disabilities in a play setting. All three adolescents increased their frequency of social interaction. Burney, Russell and Shores (1977) reinforced smiling, sharing, and any vocalizations with communicative intent which led to an increase in two children's social interaction.

In the following studies, social responding was divided into multiple classes rather than treated as one class. Haring, Roger, Lee, Breen, and Gaylord-Ross (1986) were able to teach three middle school students with autism to increase their rate of initiating and extending social interactions with non-disabled peers in the school cafeteria. During instruction, the teacher reinforced any bid that was age- and situation-appropriate. Initiation skills and extension skills were taught and measured separately. Foxx, et al. (1986) were able to train adults with moderate and severe retardation by teaching them to respond appropriately to eight examples in each of six categories of social interaction skills (compliments, questions and answers, criticism, politeness, social interaction, and social confrontation). After training, some of the group home residents demonstrated increased appropriate responding and decreased inappropriate responding in natural settings. In the final study discussed, Hunt, Alwell, and Goetz (1988) instructed four teenagers with severe disabilities to participate in interactions by "turn taking." The medium of conversation was a book of photographs associated with certain topics of interest to study participants. The class of behaviors that were prompted and reinforced in this study were answering questions and adding a comment or adding a questions. The intervention resulted in an increase in turn-taking and a decrease in collateral inappropriate behaviors. The changes in behavior generalized to non-instructional conversations.

The other method is to train social behaviors as part of a chain (initiation, expansion and completion) using a task analytic approach. Several of the experiments in The Socialization Research Project used this approach with adolescents with severe disabilities. Haring, Blair, Lee, Breen, and Gaylord-Ross (1984) first trained subjects to discriminate cues for an interaction to occur, then trained and reinforced social initiations, and finally trained and reinforced expansion statements. In another study, Gaylord-Ross, Haring, Breen and Pitts-Conway (1984) trained a chain of social responses related to radio use, sharing gum, and playing video games. These social skills generalized successfully to a high school break setting with non-disabled peers. A similar technique was used by Breen, Haring, Pitts-Conway, and Gaylord-Ross (1985) to train a social chain in conjunction with coffee preparation in two work settings. Some individuals in all of the studies adapted responses from the script as generalization to the natural environment occurred.

In another study, Charlop and Milstein (1989) taught three autistic boys to imitate scripted conversations that they had observed on videotape. The conversational skills generalization to uninstructed conversation examples. Finally, the Keogh et al. (1987) study described in the preceding section employed conversation scripts to teach social bids to an adult with severe disabilities and a boy with autism. The social bids were incorporated into a snack preparation routine. In summary, the complexity of social skills can be addressed by reinforcing or teaching a variety of social responses which promote interaction or by training a chain of related responses using a task analytic approach.

Measurement Strategies

Gresham and Elliott (1984) reviewed research on social skills training and described six methods to assess social skills. These are: sociometric scales, ratings, role play, self-report, interviews, and naturalistic observation. They questioned the use of sociometric scales to measure instructional results. The purpose of instruction is typically to improve performance, while sociometric scales rank choice of friends or popularity.

Ratings may be useful for targeting behaviors for training (Gresham & Elliott, 1984; Strain, Odom, & McConnell, 1984). Adults familiar with a student are asked to rate the students' abilities on social skills. While ratings may be useful for determining strengths and weaknesses, the measure may not reflect progress in behavior across repeated evaluations.

Another frequently used method to assess social skills is role playing although role play conditions are not correlated to performance under natural conditions (Gresham & Elliott, 1984). Role play may assess a student's ability to perform a skill, but not the ability to use the skill appropriately.

These measures of social skills may not provide an accurate representation of social interaction. Strain, et al. (1984) criticized ratings, sociometrics, and role play for their limited focus. Social behavior is an interaction between persons and context. The methods described above focus on the target student alone. Walker and Calkins (1986) describe social behavior as having two components: skill and competence. The preceding measures do not examine competence or the value placed on the skill. To measure competence in interaction, the context must be assessed in addition to an individual's skills.

The last two methods described by Gresham and Elliott (1984) address these concerns about interaction and competence. Interviews that focus on the behaviors needed in a specific situation and descriptions of students' behavior are useful in determining competence or the value placed on certain behaviors in context. Interviews can also be used to analyze the behaviors for instruction.

Naturalistic observation has face validity, is suitable for functional analysis, and can identify naturally occurring behaviors (Gresham & Elliott, 1984). Observation provides information about both the learner and the context. Observations have been based on audiotapes of skills (Foxx, et al., 1986; Haring, 1984; Haring, Blair, Lee, Breen, & Gaylord-Ross, 1986; Park & Gaylord-Ross, 1989), videotapes (Charlop & Milstein, 1989;

Schloss & Wood, 1990) or notes (Brinker & Thorpe, 1984; Doering & Hunt, 1983; Lambert & Hartsough, 1976). The majority of the measures were applied in 10 minute intervals and reported results in terms of total frequencies of response, frequencies within a category of response, or rate of responding. The transcript allows researchers to develop category systems which fit individual situations (Brinker & Thorpe, 1984; Chadsey-Rusch & Gonzales, 1988; Story & Knutson, 1989; Martin et al., 1986) and to provide more information about the interactions (Foxx, et al., 1986; Haring, et al., 1984).

Social behavior can be measured as: a level of social acceptance, performance of discrete behaviors, or overall social competence. Multiple assessment methods are needed to measure all aspects of social interaction. Ratings and role play may be useful to determine whether a student has a specific skill. Interviews are useful to assess competence or social validity of performance. Naturalistic observations can provide information about student skill performance, context, and natural occurrence of behavior.

Responding in the Natural Environment

If complex social interaction skills are to transfer beyond training and therefore be functional, these skills should be learned in response to cues in the natural environment and must be maintained by the natural environment. Teaching social skills to individuals with severe disabilities in the environments where they will use the skills is the most common method instructing the individuals to respond to natural stimuli. Social skills have been trained in this way while peers were present in free play settings (Brady, Shores, Gunter, McEvoy, Fox, & White, 1984; Gable, Hendrickson, & Strain, 1978; Peterson et al., 1979), in classrooms (Horner & Budd, 1985), in work settings (Storey & Gaylord-Ross, 1987) and in shopping malls (Hill, et al., 1982). Others have taught students to use social skills in natural settings, including work and school, but at times when only trainers were present (Breen et al., 1985, Gaylord-Ross, Haring, Breen, & Pitts-Conway, 1984; Haring et al., 1984; Haring et al., 1988). The students generalized the skills to natural times when the students were with peers in all three of these experiments.

Two of these studies were concerned specifically with initiation of social skills. Stokes, Baer and Jackson (1974) trained children with profound retardation to initiate greeting based on the proximity of a new person entering the environment. Haring, et al. (1984) taught elementary school students with severe disabilities to use the absence of a customer at a work setting to initiate social interaction with co-workers.

These studies addressed the complexity of social skills, but none of them addressed generalization of skills to other natural settings. Other reviews have had similar results. Storey (1987) located only nine studies on the generalization of social skills to community settings. In a review of 115 studies concerning skill generalization, White et al. (1985) found training in the natural environment alone to be the least successful strategy for promoting generalization in persons with severe disabilities. Other strategies to promote generalization must be combined with training in the natural setting before generalization to other settings can be expected.

Generalization

Theoretical Framework

Generalization can be understood in terms of behavior, cognition, and intelligence (Scruggs & Mastropieri, 1984). These different perspectives provide models for understanding what is meant by generalization, how generalization occurs, and how generalization is studied. The behavioral approach described by Horner (1981) will be selected for this project. This approach divides generalization into two classes: (a) stimulus generalization (i.e., the appearance of a behavior under novel stimuli) and (b) response generalization (i.e., novel responses occurring under training conditions).

Social skills, to be functional, must occur in novel settings and be adaptable in specific situations. This concept of generalization, including both stimulus and response adaptation, has been described as "far generalization" (Borkowski, & Cavanaugh, 1979). This is in contrast to "near generalization" or generalization over only a few dimensions (e.g. setting or trainers).

Establishing a relationship between a particular training strategy and the performance of the generalized response to novel antecedents is difficult. Two research studies have attempted to measure "far generalization" of social skills. Brinker (1985) found the amount of social interaction in children with severe disabilities was related to the number of opportunities to interact and the probability that interaction would be reinforced by peers. The students he observed were able to adapt responses across peers and settings. Foxx et al. (1986) were able to show an increase in social interaction among women with mental retardation in an unstructured setting following intervention on the behavior in another setting. These two studies indicate that observation of social interaction in natural environments may be correlated with social skills performance and may reflect outcomes of social skills instruction.

Drabman, Hammer, and Rosenbaum (1979) recommend that the researcher address the problem of establishing a relationship between treatment and performance generalization across several dimensions by predicting how and when generalization will occur. To measure generalization of social interaction in natural settings, the researcher would predict at what point in training generalization would begin to occur in other settings. Replicating the generalization across subjects would indicate that adapted responses to novel stimuli are related to the social skills training program.

Strategies to Facilitate Generalization

The amount of research on strategies to facilitate generalization has increased in recent years (White, 1984). Stokes and Baer (1977) conducted an exhaustive review of research on techniques supporting generalization. They criticized the research for being "setting-specific" in that generalization was limited to assessing behaviors in the presence of new trainers or to non-training conditions in the same environment. More recently, Kayser and Billingsley (1987) reviewed articles published between 1980 and 1985 and found the assessment of generalization is still limited to a few dimensions. To be functional, generalization must occur in new situations which may vary across several dimensions. Kayser and Billingsley recommend assessment of each dimension both separately and simultaneously, by persons typically present in generalization environments, before, during, and after training. Fox (1989) also has criticized the research for not including enough information about environmental stimuli, participant characteristics, fluency of behaviors, and reinforcement schedules. If more of this type of information was available, readers could evaluate the variables that are related to the mixed outcomes in the research.

Research specific to generalization of social skills in persons with severe disabilities has also been criticized for being limited (Certo & Kohl, 1984; Gaylord-Ross, Haring Breen, & Pitts-Conway, 1984). These authors argue that persons with severe disabilities are trained to be cue dependent and only use specific skills in certain situations. No attention has been given to normalized use of complex skills, or to performing social skills in unstructured integrated settings.

White (1984) reviewed the literature related specifically to generalization of social skills in individuals with severe and profound disabilities. He reviewed 30 articles published since the Stokes & Baer (1977) review. The articles in the White (1984) review included at least one participant with severe, profound, or multiple disabilities. The majority of programs focused on instruction of functional skills; the majority were concerned with simple behaviors consisting of very few steps; twenty-three percent of the studies were designed to promote generalized response class; only one study used natural cues for training and only one used natural consequences. In comparison to the earlier review by Stokes and Baer (1977) "train and hope" was still the most common strategy. There was increased use of "loose training", sufficient exemplars and natural maintaining contingencies. There were no cases of indiscriminable consequences or train to generalize. The only new technique was training in natural environments. The outcomes were not encouraging; two percent generalized completely, and 37% generalized "well". However, in 40% of the studies generalization was facilitated in some meaningful way.

White et al. (1985) reviewed 115 articles concerning generalization across all skill areas in students with moderate or severe disabilities. They found that general case instruction, mediation to the generalization setting and programming of common stimuli were the most successful strategies. "Loose training" was also successful, but research in the area is limited. They found training in natural environments successful only when paired with other strategies to facilitate generalization.

Fox (1989) reviewed literature specific to stimulus generalization in individuals with profound disabilities. Of the 25 studies she reviewed, those that were successful in producing generalization appeared to have these six characteristics. These were: (a) trained several exemplars; (b) trained behaviors likely to be reinforced in natural settings by natural consequences; (c) trained with stimuli that are common in generalization settings; (d) trained in environments that are common generalization settings; (e) training in environments that subjects frequently encountered; and (f) trained skills that will be used in environments where models of behavior are available.

These reviews provide direction for the selection of strategies that may be most applicable to facilitate generalization of social skills to post-school environments in adults with severe disabilities. The generalization techniques most applicable to the environments and conditions in this research include: a) sufficient exemplars, b) loose training, and c) mediation to generalization setting(s). Sufficient exemplars is defined as the training of new examples of a stimulus until the response transfers to new examples. This technique has been used to train generalization of play behaviors (Brady et al., 1984; Gable et al., 1978) and greeting responses (Stokes et al., 1974) in children with severe disabilities. Breen et al., (1985) used the technique to train conversational skills in adolescents with severe disabilities. In all of these studies, the exemplars were peers. Students were taught to interact with one peer to criteria. Then they were introduced to new peers sequentially until the skills generalized to untrained peers.

A variation of the sufficient exemplars approach that has been used effectively with persons having severe disabilities is general case instruction. In this approach, the teaching examples are selected to sample the range of both stimulus and response variation the learner may encounter after training (Becker, Engelmann, & Thomas, 1975). For example, to learn how to select a drink from vending machines, a student would be taught to respond to buttons, doors, panels, and levers (stimulus variation) by pushing, sliding, or pulling (response variation) (Sprague & Horner, 1984). General case instruction has been used effectively to train adults with severe disabilities to assemble mechanical parts (Bellamy, Oliver, & Oliver, 1977), to use vending machines (Sprague & Horner, 1984), to use tools (Horner & McDonald, 1982), and to dress (Day & Horner, 1986). Both response (e.g., pulling a lever instead of pushing a button) and stimulus generalization (e.g., using a new hammer) were exhibited by the subjects in these studies.

Strategies that facilitate mediation to the generalization setting may be needed in addition to instruction in social skills. Mediation can refer to training in each generalization environment or structuring the environment to facilitate generalization (e.g., having others reinforce skills outside of the training situation). Training social skills in the natural environment has been successful with school-aged persons with severe disabilities (Duker & Morsink, 1984; Gable et al., 1978; Horner & Budd, 1985; Peterson et al., 1979; Simic & Bucher, 1980; Strain, 1983; Van Biervliet, Spangler & Marshall, 1981).

Either "loose training" or self-monitoring could be implemented in the generalization setting to mediate the transfer of skills. Loose training is a strategy that may be efficient for training social skills in generalization settings. This is a procedure which does not require systematic definition of cues and/or responses. This strategy has been used successfully to increase generalized social responding with adolescents (Peterson et al., 1979) and children (Burney et al., 1977) with severe and profound disabilities. In both of these studies, trainers reinforced any appropriate social behaviors that occurred in free play settings. The response and reinforcement in these experiments were "loosely" defined. In both cases, students increased the frequency of social responding.

Another method to facilitate mediation to generalization settings is structuring the environment to maintain the skill. Self-monitoring or keeping track of one's own behavior could be implemented to modify the generalization setting. Liberty (1987) reviewed 15 studies published between 1980 and 1985 that examined the effect of self-control strategies, which included self-monitoring. As an instructional strategy, self-control techniques were effective in 50% of the cases involving students with severe disabilities. However, in the cases where generalization was assessed, the technique was effective for 91% of the cases involving students with severe disabilities. Self-monitoring has resulted in increased use of social skills by students with learning disabilities (Shumaker & Hazel, 1984), Self-monitoring has was also used to accelerate the frequency of greeting responses from an adolescent with autism (Kiburz, Miller, and Morrow, 1984). When the adolescent was reinforced for reporting occurrences of the behavior to his teacher, he generalized social initiations to three different environments. Agran, Salzberg, and Stowitschek (1987) taught self-monitoring to five workshop employees (two of whom had severe mental retardation) to facilitate generalization of communication. The employees were trained to use self-instructions to request assistance when they ran out of materials. The skill generalized from a training room to the work setting. Finally, Storey & Gaylord-Ross (1987) taught students playing pool to self-monitor their performance of positive statements by circling numbers on a card. The students were reinforced when their performance improved.

Maintenance of Social Skills in Post-School Environments

In order for social responses to generalize to the post-school years, the skills must be maintained by consequences occurring naturally in the post-school environment. Delineation of the characteristics of the environment that maintain the skills and delineation of the skills which receive reinforcement in natural environments must be completed to determine which skills will be maintained by natural consequences. Berman and Opalski (1984), in a review of generalization of skills that received reinforcement in the natural environment, found three characteristics which affected generalization: (a) the functional nature of the skill (e.g., spontaneous initiations were more useful than receptive skills), (b) the "purchase power" of the skill (e.g., some skills received more reinforcement than others), and (c) the environmental relevance (e.g., skills to discriminate when to engage in a target behavior and skills which allowed for independent functioning).

Some researchers have employed observation to determine which skills will be reinforced in the environment. Minkin et al. (1976) observed social behavior in non-disabled college and junior high school students to determine which social skills were the most powerful. They found questioning and providing feedback were the most functional skills for extending social interactions. Gaylord-Ross, Haring, Breen, and Pitts-Conway (1984) observed high school students during free time to select items to facilitate interaction. Then they trained students with severe disabilities to share a video game, a walkman, and gum with friends. The amount and duration of interaction between target students and peers was increased.

There is evidence to indicate that persons with severe disabilities are more likely to be reinforced for social behavior in integrated settings than in segregated settings (Burney et al., 1977; Brinker, 1985; Stainback & Stainback, 1981; Strain, 1983). Bak and Siperstein (1987) found non-disabled children were more likely to choose peers who were retarded to play a bean bag game when those children were competent in the game than when they were below average. These results indicate that skills are more likely to receive reinforcement in the natural setting when an individual is competent in appropriate skills.

Additionally, studies have shown that when children with severe disabilities have a choice of non-disabled or peers with disabilities to interact with, they will choose non-disabled peers (Brinker, 1985; Guralnick, 1981). In contrast, research with adults in the community show adults with severe disabilities choose disabled over non-disabled peers to share their spare time (Crapps, Longone, & Swain, 1985; Gollay et al., 1978; Kaufman, 1984). It should be noted, however, that few of the subjects in these latter studies had been educated in integrated schools, which may have affected their choice.

While the majority of studies reviewed did not address the maintenance of social skills, five of the studies do indicate that social skills can be maintained in natural environments. First, in a study with a school-age autistic youth, spontaneous use of signed requests for reinforcers was maintained for three months (Horner & Budd, 1985). However, the subject ceased to demonstrate the skill with a new teacher the following year. Gable et al. (1978) compared the effects of artificial and natural consequences on the performance of appropriate social skills in two children with multiple disabilities. The study was conducted in a play setting. They found that the frequency of social skills maintained at rates higher than baseline in both conditions but that edible reinforcers maintained the highest rates. Van Biervliet et al. (1981) maintained increased social interaction for four months in a family style dining situation with peers having mental retardation. Brady et al. (1984) taught play behaviors to children with disabilities and three non-disabled peers. The students with disabilities demonstrated the same play behaviors with five other peers and maintained cooperative play behaviors in an integrated play group for nine sessions. The length of time between sessions was not reported. Two of the three women in the Foxx et al. (1986) study maintained increased social responding for 15 weeks within their training group. The results of these three studies indicate social skills can be maintained in natural settings.

Summary

Research is still needed to demonstrate both effective instructional strategies and the transfer and maintenance of social skills to post-school environments in adults with severe disabilities. However, research on adult and school-aged populations with disabilities provides some guidance for future research. Students with severe disabilities can be taught complex social skills. The techniques of sufficient exemplars, loose training, and mediation to the generalization setting appear likely to increase generalization of social skills. Finally, if instruction focuses on the natural cues and consequences, then social skills will be more likely to generalize to post-school environments and to be maintained.

In this research project, the complexity of social skills was addressed by teaching social skill examples from classes of social interaction. Measurement of generalized social interaction was conducted through observation of interactions. Responding in the natural environment was addressed by teaching skills likely to be needed in natural settings and training at natural times in the school day. Skills were selected through observation in generalization settings. General case programming was used to facilitate generalization. "Loose training" or self-monitoring were used to mediate generalization to post-school environments if necessary. Selection of skills that were observed being reinforced in target environments for instruction was expected to maintain maintenance of the skills because the behaviors would be reinforced naturally in those environments.

Chapter 3

METHODOLOGY

This chapter discusses the methods and procedures for three research studies. The first study examines the effectiveness of modified general case instruction to teach student social skills that generalize to and are maintained in post-school environments. The second study examines the effectiveness of a "loose" training program to mediate the generalization of skills. The final study is a descriptive analysis of social interactions. First, the sample for all three studies is discussed. This is followed by a description of the designs, the dependent variables, the independent variables, and the data analysis procedures for each of the studies.

Stated briefly, this research addressed the question of whether social skills selected to be functional and taught in ways which promote generalization would generalize to and be maintained in other settings. An initial training program was implemented with three secondary school-aged students having severe disabilities to increase their social interaction skills. Additive procedures to mediate generalization to post-school environments were implemented when training did not result in the transfer of social skills to other settings. One student participated in a study of the use of "loose" training in the selected generalization sites to mediate generalization. Procedures were evaluated by recording incidents of generalization during training, measuring the general use of skills in non-training environments during school, and measuring generalization to post-school environments following each student's graduation. Additionally, teachers, parents, and peers in generalization settings were interviewed throughout the study to assess relevance and appropriateness of the selected social skills.

An additional descriptive analysis was conducted to explain the factors involved in social interactions. The three students were observed in a variety of unstructured settings where social interactions were expected to occur. These interactions were analyzed utilizing qualitative methodology to interpret and explain the factors that influenced social interaction in addition to student performance.

Sample

Three students were selected from one secondary classroom for students with severe disabilities in the mid-Atlantic region. Because this study was designed to assess the generalization of social skills to post-school settings, several requirements were used to select students. First, these students were expected to complete their educational program or receive the majority of their training in the community during the study. Second, these students had demonstrated disabilities in the acquisition and/or generalization of social skills, as demonstrated by: (a) goals on their Individualized Educational Plans; (b) reports of past performance; (c) results of environmental inventories conducted by classroom teachers, and (d) parent, teacher, and work supervisor ratings of student performance. Participating students were selected in the following manner. Letters describing the study and requirements for participation in the study were sent to six school districts within a 70 mile radius. The author then contacted each school district by telephone. One district chose not to participate. Three districts could not be included in the study because no students were expected to complete their educational programs during the course of the study. One other district could not participate due to the school board's administrative time line for accepting research proposals.

The author then met with teachers in the remaining two school districts. Six students, three at each site, were selected for participation based on the requirements described in the preceding section. Permission to participate in the study was obtained from the parents and from the participants. First, a letter explaining the purpose of the study and requesting permission was sent to the parents of the students selected to participate by the schools (See Appendix A for a sample letter.). This letter was followed by a meeting with the classroom teacher or a school representative, the parents, and the author. At this meeting, the procedures for training and for data collection in generalization settings were explained to the parents. Additionally, parent questions were answered and written permission was obtained. After acquiring parent permission, the purpose of training was explained to participating students and data collection procedures were explained or demonstrated. Students were asked to affirm their willingness to participate. Their response was witnessed and then recorded by the witness (See form in Appendix A.).

During the Baseline Phase, research at one of the two sites was discontinued. The site was a separate educational center for secondary students with severe disabilities. Students were enrolled in classes on a quarterly basis. Every nine weeks, the students' teachers and instructional objectives were changed. During the quarter that instruction was scheduled to begin, one student was to spend all of the school day at the segregated center and one student was to spend the majority of her community program time in a sheltered workshop. Neither of the two students were actually participating in instruction that occurred in integrated settings where non-disabled peers were also present. An additional problem was related to the study time line and the departmental nature of the school program. When Intervention was to have begun for the last one or two students, they would have had different teachers, have attended different instructional settings, and have had instructional goals that differed from their initial goals. It was acknowledged that these changes in conditions would confound both experimental control and procedural reliability. Finally, because these students spent little or no time in integrated settings, questions about generalization to integrated settings could not be addressed. Therefore, students in this center-based program were not included in the study beyond the Preliminary Phases.

Participant Descriptions

All three students who participated in this study attended the same class. They were identified by school district evaluations as having severe mental retardation. The classroom teacher identified two women with low social skill performance who would graduate at the end of the school year. The program coordinator for students with moderate and severe disabilities selected the third student for participation by her social skills needs. The students' teacher from the preceding year confirmed the current teacher's evaluations. Interviews and observations were conducted to gather descriptive information about each young woman's social interactions.

Doris. Doris was 21 years old and had Down syndrome. She was identified as having severe mental retardation. She lived in a neighborhood on the outskirts of a moderately sized town with her mother, a sister-in-law, and two nieces. She spent most of her leisure time at home or with children in the trailer park and rarely went out into the community with her family. At the beginning of the study, she worked two mornings a week in the laundry room of a major chain hotel. On the afternoons of those days she participated in community-based training at a grocery store and an apartment. The other three days were spent at a sheltered workshop doing assembly work. During the pre-baseline observations, Doris lost her job at the hotel because she frequently left her work site. She was then assigned to the area sheltered workshop from 9:00 a.m. until 2:00 p.m. everyday. Following work, she returned to the classroom for an hour each day.

Doris's teacher and mother described Doris as being able to interact with people she knew, such as classmates and neighbors, and responding favorably to social attention. Doris's needs included: (a) speaking in a way that was understandable to others; (b) initiating interactions with others; and (c) responding to another's request for clarification without anger. Doris's social interactions were described by her teacher and her mother as being short and typically initiated by others. While these behaviors were observed by the researcher, Doris was also seen initiating with classmates at school and with her supervisor at the hotel. In addition, she was described as being a loner, spending time at home in her room listening to the radio. When she had free time at school, she often sat with her head on the table, or listened to music, or read books by herself. Doris's teacher noted that Doris exhibited maladaptive behaviors to solicit attention. During observations, Doris ran away at work three times, pretended to be sick (i.e., coughing and gagging) both at school and at work, and seemed to exaggerate her anger.

Trudy. The next participant, Trudy, was also 21 years old at the beginning of the study. In addition to functioning in the range of severe mental retardation, Trudy had mild cerebral palsy, blindness in one eye, facial deformities which made it difficult for her to show affect, and a seizure disorder for which she took anticonvulsant medications. She lived in a rural town with a couple who had served as her guardians since Trudy was three years old. The guardians worked in a small private motel and a restaurant. Trudy helped her guardians with the work at the motel. During school, Trudy received training for a half day at a franchise economy motel. She gathered dirty linens from the motel rooms and then laundered and folded them. In the afternoons she participated in community-based instruction for leisure and domestic skills.

Trudy's teacher and guardian identified her skills as being able to talk to people. She was also described as helpful, both at the private motel and with her classmates. Her teacher described her needs as: (a) making eye contact; (b) showing an awareness of her personal hygiene; (c) initiating interactions with peers; and (d) extending conversations. Her guardian confirmed that Trudy did not make eye contact during conversations. Trudy's interactions were typically short. She could ask people what they been doing and could answer their questions, but did not look at them during these interactions. At school she tended to interact more with staff than with classmates. She also interacted with people in the lobby at the private motel.

Wendy. The third participant, Wendy, was 20 years old at the beginning of the study. Wendy functioned in the range of severe mental retardation and had a seizure disorder which developed following a head injury when she was three years old. She also had a coordination disorder which caused her to loose her balance and fall frequently. Wendy worked for a half day at the same economy motel as Trudy and was learning the same tasks. In the afternoons, Wendy participated in community-based training for domestic and leisure skills.

Wendy's teacher and her mother described her as talkative and social. She used a set routine of questions to interact (e.g., "How old are you?" "When is your birthday?"). Wendy was also observed repeating compliments in conversational routines. Both interview respondents also noted that Wendy often spoke to strangers. The respondents indicated that Wendy's behavior with her family differed from her behavior at school. Her mother noted that Wendy would hit others and had tantrums, but would be "good" when she knew she would get something, such as a hamburger. Her teacher described Wendy as initiating interactions and having appropriate conversations with her classmates about herself and about her activities. She was sometimes overly affectionate with staff and coworkers. She was observed telling coworkers she loved them and holding onto peoples' hands after shaking hands with them. Wendy's needs were listed by her teacher and her parent as: (a) learning not to talk to strangers; (b) learning not to talk out of turn; (c) learning not to demonstrate aggression toward others; (d) distinguishing appropriate topics and questions for conversation; (e) terminating physical contact (i.e., handshakes); and (f) participating in recreational activities.

Design

This study consisted of two related experiments and a third descriptive study. The first experiment evaluated the effectiveness of an in-school training program to facilitate generalization of social skills. A follow-up experiment was conducted to demonstrate the effectiveness of a mediation technique (i.e., loose training) to facilitate generalization of social skills to post-school environments for one of the participants. The third study provided descriptive information about the type and quality of the social interactions in which the participants engaged.

General Case Instruction

In the first experiment, a modified form of general case instruction was used to facilitate stimulus and response generalization during social skills training. A multiple probe design across participants and across skills was employed to demonstrate the effects of the social skills training program. Instruction began with Doris and continued until she had demonstrated mastery of the first skill at the acquisition criterion. Then training was initiated with Trudy, while extending instruction to the second skill with Doris. When Trudy mastered the first skill at the acquisition criterion, Wendy began the instructional program as skill instruction continued for Doris and advanced to the second skill for Trudy.

Program effectiveness was assessed with four measures: the frequency of response and stimulus generalization in the training setting, and the frequency and duration of interaction in generalization settings. In the classroom setting, student adaptations of trained responses (e.g., response generalization) and their responses to novel stimuli (e.g., stimulus generalization) were evaluated during weekly generalization probes. Generalization and maintenance were also evaluated during observations in generalization settings. Frequency of response, class of response (i.e., initiation, extension, or termination), frequency of errors, and duration of appropriate interactions were recorded. The program was evaluated through an analysis of both acquisition and generalization data in the training setting and generalized responding in post-school settings.

"Loose" Training Program

Doris demonstrated limited generalization to the post-school target environments during the follow-up phase, so a procedure to mediate generalization to novel environments was employed. A "loose" training technique (Brady et al., 1984; Gable et al., 1978;, Peterson et al., 1979; Strain, 1983) was employed in the target generalization sites. Effectiveness of the procedure was demonstrated through the use of a multiple-probe across skills.

Descriptive Study

The third study employed qualitative methodology to describe the types of interactions in which participants engaged. The author and three research assistants used participant observation and interviews to gather data about the students' social interactions. Observation times and sites were selected to provide maximum variation (Patton, 1980). Observations were conducted in a variety of integrated settings (e.g., public parks, fast food restaurants, laundromats) so that questions about interaction in those settings could be addressed. Some observations were also conducted in segregated settings, both to provide a comparison and because participants spent some of their leisure time in such environments. Observations also were varied by: (a) the type of occurrence (e.g., routine activities such as lunch break, occasional activities such as going shopping, and special events such as birthday parties); (b) the relationship of interaction partners (e.g., friends from school, teachers, co-workers); and (c) the number of persons present. Observations and fieldnotes were then content analyzed.

Independent Variables

Strategies to Facilitate Generalization

The instructional program included three components to facilitate generalization. These were: (a) selecting functional skills for training, (b) using sufficient exemplars (i.e. general case programming), and (c) and systematic fading of artificial prompts and reinforcement. Selecting Functional Skills

Functional skills were selected for training through interviews and observation in generalization settings. Training and generalization settings were chosen following interviews with parents, teachers, and participants regarding leisure settings the participants would probably use or continue to use following graduation from school. The settings selected were: (a) shopping malls; (b) fast food restaurants; (c) break areas at work sites; and (d) therapeutic recreation programs. Two observers collected fieldnotes at each of the sites. Fieldnotes included information about the topics discussed, the types of remarks, and the types of interactions that were observed. Observed behaviors and topics were selected as potential training cases if they were observed being appropriately reinforced (i.e., if they served to continue positive social interactions).

The reinforced skills were included in a list of potential targets for instruction. The skills list served as the basis for interviews with consumers in each of the generalization sites. (See interview protocols in Appendix B). Five non-disabled individuals who also utilized a generalization site but were not previously associated with the research project were asked to rate the importance of each skill (e.g., asking questions) in the generalization setting and to discuss the appropriateness of each topic (e.g., sports).

A second series of interviews were conducted with parents and teachers regarding participants' strengths and weaknesses in social interactions. Then they were asked to rate the importance of the potential skills for each student and estimate how often the student performed these skills.

The final step in determining functional target skills was to observe participants interacting in social environments. The skills listed in Table 3.1 are those skills selected for instruction following the completion of the interviews and the observations. These skills were divided into three classes: initiation, extension, and termination. The "initiation class" was composed of those skills needed to determine how and under what circumstances to begin social interactions. The "extension class" consisted of skills that served to continue a conversation or had a likelihood of being followed by a conversation partner's response. The

Table 3.1

Social Skills Selected for Potential Instruction

Initiation Skills

I-1: Initiates when peers are on break and not at work

I-2: Initiate with known individuals and not strangers

I-3: Initiates when others in the group are not talking

Extension Skills

E-1: Expresses an opinion (e.g., I like that picture, too.)

E-2: Asks questions

E-3: Repeats part of other's statement and add new information (e.g., "You like roast beef? I had some last night for supper," in response to "I like roast beef.")

E-4: Returns greeting and extends the interaction (e.g., "Hello, what's new?")

E-5: Answers question and extends the interaction (e.g., "Yes, I like to swim at Raven Pool," in response to "Do you like to swim?")

E-6: Extends question interactions (E-2 with extension statements (e.g., listens to other's answer and comments on that answer)

(table continues)

Table 3.1 (cont.)

Termination Skills

T-1: Responds to other's termination statement

T-2: Initiates termination at the end of event or conversation

Other Skills

0-1: Combines skills to take four turns in a conversation

0-2: Makes introductions

0-3: Uses manners (e.g., says "excuse me" to pass through a crowded room)

Topics to Discuss

Yourself, family, pets, living situation, work, friends, recent past, destinations, future plans, fashion

Collateral Behaviors

Maintains the topic

Makes eye contact

Uses appropriate volume

Does not exhibit stereotypic movements

Waits until partner stops talking to make a response

"termination class" consisted of behaviors to end conversations appropriately.

Another set of skills called "collateral skills" were selected based on the student needs described in the interviews and from observations of the student.

Collateral behaviors included: a) eye contact and physical orientation toward a conversation partner; b) appropriate volume and enunciation for understanding; c) maintenance of appropriate distance from conversation partners; d) absence of stereotypic behavior; e)use of positive affect; f) direction of conversation to others; g) absence of repetition of conversation partners' phrases; and h) disengagement of handshakes within three seconds. Collateral behaviors were to be used in conjunction with the conversation skills.

Sufficient exemplars. Because social responding is controlled by a variety of stimuli, and general case instruction has been shown to facilitate responding to novel stimuli, general case instruction (Horner, Sprague, & Wilcox, 1983) was selected as the teaching method. A class or group of social behaviors were trained in response to each class of stimuli for each skill. For example, Table 3.2 illustrates some of the "cases" of stimuli and responses used for instructing the skill "expresses opinion." All teaching examples are located in Appendix C.

In addition to the use of multiple examples, multiple teachers and conversation partners were also used to facilitate generalization. One classroom teacher, two graduate students (one in special education and one in counselor education), and the author served as teachers.

Table 3.2

General Case Examples: Expressing Opinions

Stimulus Class	Response Class
Question	Positive Opinion
What kind of music do you like?	I like country music.
What do you like to watch on television?	I like 'Wheel of Fortune.'
	Negative Opinion
What is the worst part of going to work?	I don't like to get up early.
What do you think about mini-skirts?	I'd rather wear pants.
Statements of Opinion	Agree
Work is fun when you like who you work with.	Yes, I like to work with Barb.
I like to dance when I go to parties.	I like to dance, too.
	Disagree
I don't like to watch tv.	I do, I watch the stories.
My favorite food is broccoli.	I don't like that.

All of the teachers sometimes served as conversation partners. Additional conversation partners included: (a) three non-disabled high school students; (b) four assistant teachers; (c) two classroom teachers; and (d) another graduate student in special education.

Systematic Fading

The final generalization strategy was the systematic fading of artificial prompts and reinforcement. Prompts were faded through the use of progressive time delay. Reinforcement was faded by implementing a variable schedule during the maintenance phase of instruction. Also, conversational prompts were faded during natural break times. These generalization strategies were incorporated into the instructional program described below.

Instructional Program

Baseline

Eight cases (i.e, example stimuli) were developed to elicit each target skill. The cases were designed to reflect the interactions observed in the generalization sites and to sample a range of topics. (The cases used for Baseline, Instruction, and Probe are located in Appendix C.) During Baseline all eight cases for each skill were presented consecutively in one session. Baseline sessions ranged from 10 to 20 minutes, depending on student schedules. The number of skills presented in each session also varied according to time available. The classroom teacher, a teaching assistant, a research assistant (a graduate student enrolled in special education), and the author participated in conducting baseline sessions. Following the Baseline Phase, the cases were divided into two sets. One set was used for instruction and one set was used for generalization probes. Three of the cases that were incorrect on all baseline trials were selected for probes. An effort was made to select cases across skill examples about similar topics so that the probes would seem more conversational. Remaining cases were used for instruction.

Instructional Procedures

The instructional program consisted of three sections: (a) 10 trials for acquisition of a new skill; (b) five minutes to review cases of previously mastered stimuli; and (c) three minutes of supervised conversation practice. The total instructional session lasted approximately 15 minutes. Instructional times and settings varied across students. Initially, all sessions were conducted at school near the end of the school day. When Trudy's schedule changed to a full day at work, instruction was conducted in the laundry room at the motel, just before her morning break. Wendy also was placed on a full-time work schedule during the Intervention Phase. Thus, her instruction took place at the school setting for the first 21 sessions, at work prior to morning break for a total of 32 sessions, and at work in the afternoon for the remaining six sessions. When Wendy developed problems staying on task during the afternoons, her instruction was moved to the afternoon. Her teacher and supervisor felt she needed an additional break from work at that time.

Specific procedures for instruction varied across classes of skills. For the initiation skills, photographs of different social situations were used to solicit greeting responses. (Photographs are described in Appendix C.) Only one teacher and one student were involved in each instructional session. The teacher presented the picture to the student and said: "What would you do if you saw this?" For the extension and termination skills, a conversation partner also participated and presented the stimulus. The student was seated facing the partner and the teacher stood behind the student to provide feedback, prompts, and reinforcement.

Time delayed verbal prompts were used to instruct all target skills. The teacher or conversational partner presented the stimulus. The student was given a latency during which to respond (except during the 0-second delay phase). If the student responded correctly during the latency the student received reinforcement and specific feedback about her performance. If the student did not respond during the latency, the teacher gave a verbal prompt. If the student responded incorrectly during the latency, the teacher immediately interrupted the student with the prompt. Whenever the student made a correct response after the prompt she was reinforced and given specific feedback about her performance.

The time delay levels were zero seconds, three seconds, and six seconds. The delay was increased on the following session if the student was correct (before or after the prompt) for eight of the ten trials. The delay was decreased by one level if the student made three errors in one session. When the student achieved a mastery criterion of 80% correct (no prompts) on the trials in one session, instruction on the next skill was initiated and the mastered skill was practiced in review sessions and supervised practice conversation.

Reinforcement

The type of reinforcement varied according to the skill and the student. For the initiation skills, that were taught using pictures, the teacher praised the student and provided specific feedback (e.g., "That's right, you could say something because you know Kelly," or "No, you would not say hello because they are talking"). For the skills that were taught using a conversation partner, the partner responded to the student enthusiastically. For example, if the student was working on "expressing opinion" and said that she liked the singer Madonna, the conversation partner would say "Yeah, Madonna's pretty good. Have you seen her new video?". Then the teacher would provide specific feedback about the target skill and collateral behaviors (e.g., "You said what you liked and you looked at Thom").

Individual reinforcement procedures were selected after discussion with the current and former classroom teachers and with the supervisor. They predicted that Doris and Trudy would need primary reinforcers, so these students received a drink (i.e., coffee, chocolate, or soda) after each training session. During training, a visual aid was used to remind the students they were "earning" a drink for their breaktime. The visual aid was made of cardboard and had a drawing of an empty glass. The cardboard was slit so that a colored piece of cardboard could be slid making it seem as if the glass was filling with liquid. The fluid level was raised after each correct response. Over the course of instruction Doris began to monitor her own progress, moving the beverage line up for herself. Trudy's work supervisor requested that coffee not be used as a reward for Trudy after the eleventh session. He reported that Trudy talked about coffee throughout the day and took more than her scheduled amount of coffee breaks. He asked the teacher not to put any emphasis on coffee or to call any more attention to coffee. After that, Trudy got her coffee before the instruction began and sipped it throughout the session.

Reinforcement for Wendy consisted of the partner's response and the teacher's feedback, except for the last skill, "initiating terminations". For that skill, the teacher handed Wendy a card with a "+" on it for each correct response before the prompt, and told Wendy that she could go to a restaurant for iced tea during her breaktime when she received eight cards in one session. This technique was selected when an error analysis indicated that Wendy was having difficulty differentiating between prompted and self-initiated responses.

Follow-up Program

Observations made during the follow-up phase indicated that one student, Doris, was not exhibiting the collateral behaviors in the generalization settings. Doris did not make eye contact with conversation partners or respond to partners' social bids. Additionally, she exhibited a variety of inappropriate behaviors including: (a) turning her back on conversation partners; (b) mumbling under her breath; (c) insulting her conversation partners; (d) walking away from partners in the midst of an interaction; (e) sitting on the floor; (f) demanding that others purchase food or other items; and (g) refusing to leave the site when an activity was completed. Therefore, a follow-up program was implemented to increase Doris's appropriate social behaviors in generalization settings.

Three behaviors were selected for instruction. The first behavior was maintaining eye contact with a conversation partner for one second while the conversation partner made a social bid. The second behavior was maintaining eye contact and responding to a partner's social bid. A correct response was defined as a gestural or verbal response occurring within six seconds of the bid, and not accompanied by any of the inappropriate behaviors listed above. The third behavior was a combination of the first two behaviors except that the response had to be a verbal phrase of at least three words.

"Loose" training and multiple exemplars were the strategies selected to mediate generalization. The "loose" training strategy was applied to the stimuli and examples for prompted responses. The stimuli were the first ten bids made to Doris after she entered the training site. The bids were most often made by the teacher, but other naturally occurring bids were included in instruction. When Doris did not respond or when she made an error, any response that was appropriate to the bid could be prompted. For example, if Doris and the teacher were shopping for greeting cards, the teacher might say: "I like this card, Doris." Doris could be prompted to show a card and say: "I like this one." Or if Doris and her teacher went out for a soda after work, a stimulus might be: "What did you do at work today?"; and the prompt could be: "Put switches in boxes."

Teachers and settings were varied to accomplish the use of multiple exemplars. Instruction took place in a grocery store, a fast food restaurant, and a drug store. Generalization was assessed in a discount department store and at an ice cream parlor. One research assistant and the author alternated as teachers.

The training procedure involved a social bid, the student's response, teacher feedback or prompt (as appropriate), a practice trial if necessary, and the reinforcing consequences (if appropriate). First, the teacher would make a conversational bid to the student. If Doris responded correctly, the teacher provided praise and specific feedback (e.g., "Great, Doris, you looked at me when I spoke to you"). If Doris did not respond or made an error, the teacher provided specific feedback and a prompt for a correct response (e.g., "Doris, don't walk away when I say something. If you disagree, say: 'I don't think so.'). Then the teacher repeated the stimulus so Doris could practice a correct response.

In addition to praise and feedback, Doris carried a picture of a reinforcer she had selected. The picture was attached to a chart of blank squares. When Doris made a correct response, the teacher checked a square. When all of the boxes on the chart were full, Doris got to purchase the reinforcer (e.g., make-up, a cassette tape, ice cream). When a new skill was introduced, Doris received reinforcement for initial correct responses and for correct responses in practice trials. When she had attained 80% correct, the reinforcement was given for correct responses only after the initial bid and not following practice trials. Reinforcement was faded by increasing the amount of boxes on the chart each time Doris completed the reinforcement card.

These particular procedures were selected for Doris after interviews with her parent and her work supervisor. They stated that these were procedures that could be implemented at work and during social outings with the family. Doris's family took her shopping each time she got her pay check. Eventually reinforcement could be faded to match Doris's pay schedule by increasing the number of boxes on the card.

Descriptive Study

The intent of the third study was to describe the interactions in which the study participants engaged. The procedures were those associated with qualitative methodology or naturalistic inquiry (Bogden & Biklen, 1982; Lincoln & Guba, 1985; Patton, 1980). Three types of data were collected: (a) interview; (b) structured observations; and (c) fieldnotes.

Interview

Questions to elicit information describing student interactions were included in the social validation interviews. Interviews were conducted three times during the study for Doris and Trudy and twice for Wendy. The interviews were conducted before the social skills intervention, at the end of the Intervention Phase and again four to six months following graduation for Doris and Trudy. Interview respondents were selected to sample a range of relationships and included parents, teachers, employers, co-workers, and acquaintances.

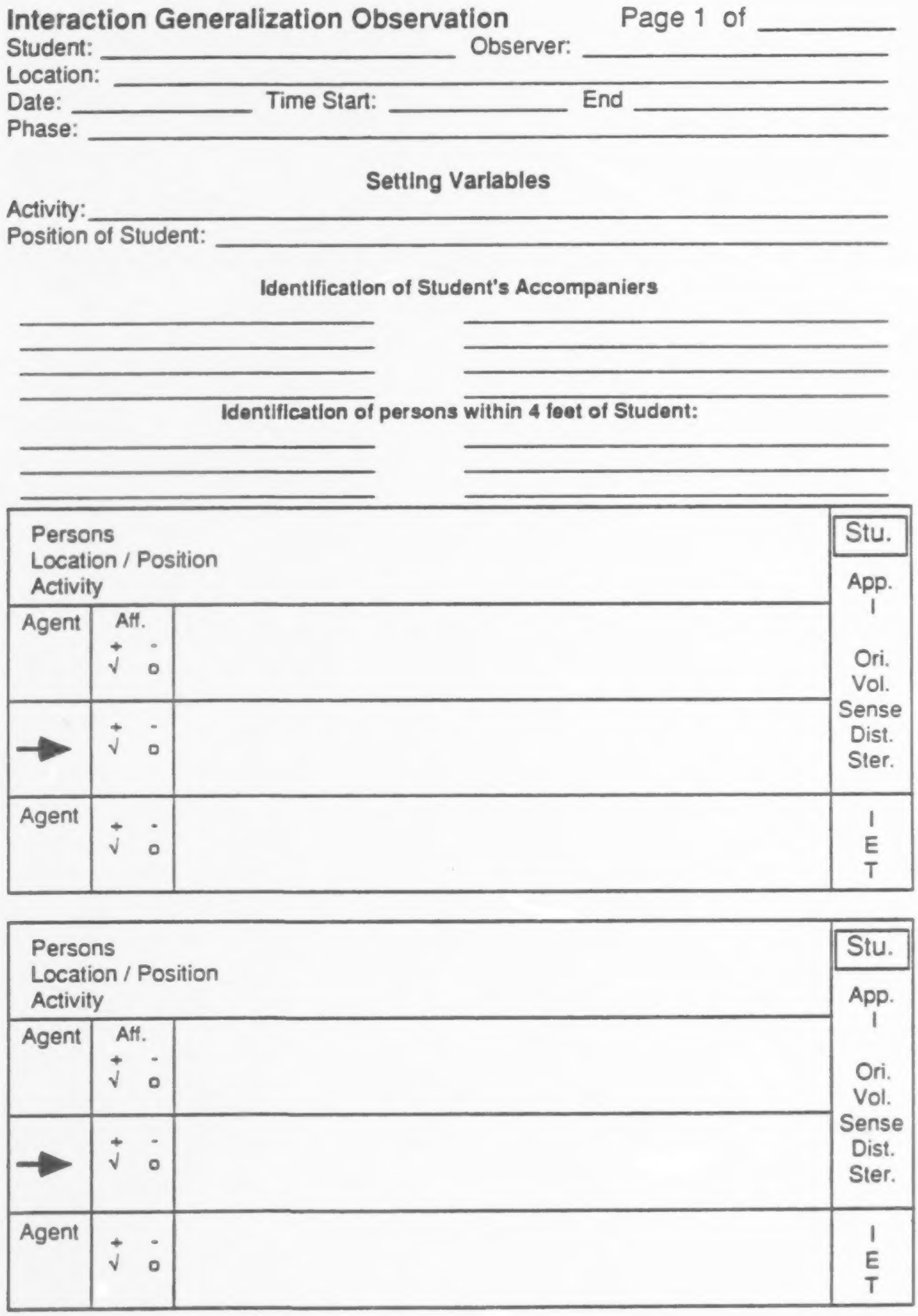
Each interview began with the same three questions. The respondents were asked to describe the student's social interactions, to describe her strengths in social interactions, and to list the student's needs to participate more fully in social interactions. In the intervention and follow-up interviews, respondents were questioned about changes noted in student behavior, about the social validity of the training procedures, and about their own participation in the research. During the last interview the participants were asked if the research team's descriptions of the students "fit" the respondent's perception of the student. Interview guides are located in Appendix B.

Structured Observations

The author and the two research assistants conducted structured observation of the students over the course of the 17 months of the project. During the structured observations, the observers recorded student social behaviors, bids made to the student, and responses to the student. The observations lasted for 10 minutes and the observers would spend approximately an hour following an observation completing notes they had collected. Observations were recorded using the Interaction Generalization Observation Forms (IGO) (see Figure 3.1). When a lot of interaction occurred during the observation, observers would use personal abbreviations and notes to facilitate remembering details. Completing the notes involved clarifying the notes and abbreviations and adding details that would help in later interpretation of the observation notes.

Fieldnotes

The third type of data were fieldnotes collected by the author and the research assistants. They had a variety of social contacts with the study participants. Interactions between project staff and students occurred: (a) around instructional sessions for social skills training; (b) during social outings; and (c) when project



Interaction Generalization Observation Page 1 of ________

Student: ____________________ Observer: ____________________

Location: ____

Date: __________ Time Start: __________ End __________

Phase: ____

Setting Variables

Activity: ____

Position of Student: ____

Identification of Student's Accompaniers

______________________ ______________________

______________________ ______________________

______________________ ______________________

______________________ ______________________

Identification of persons within 4 feet of Student:

______________________ ______________________

______________________ ______________________

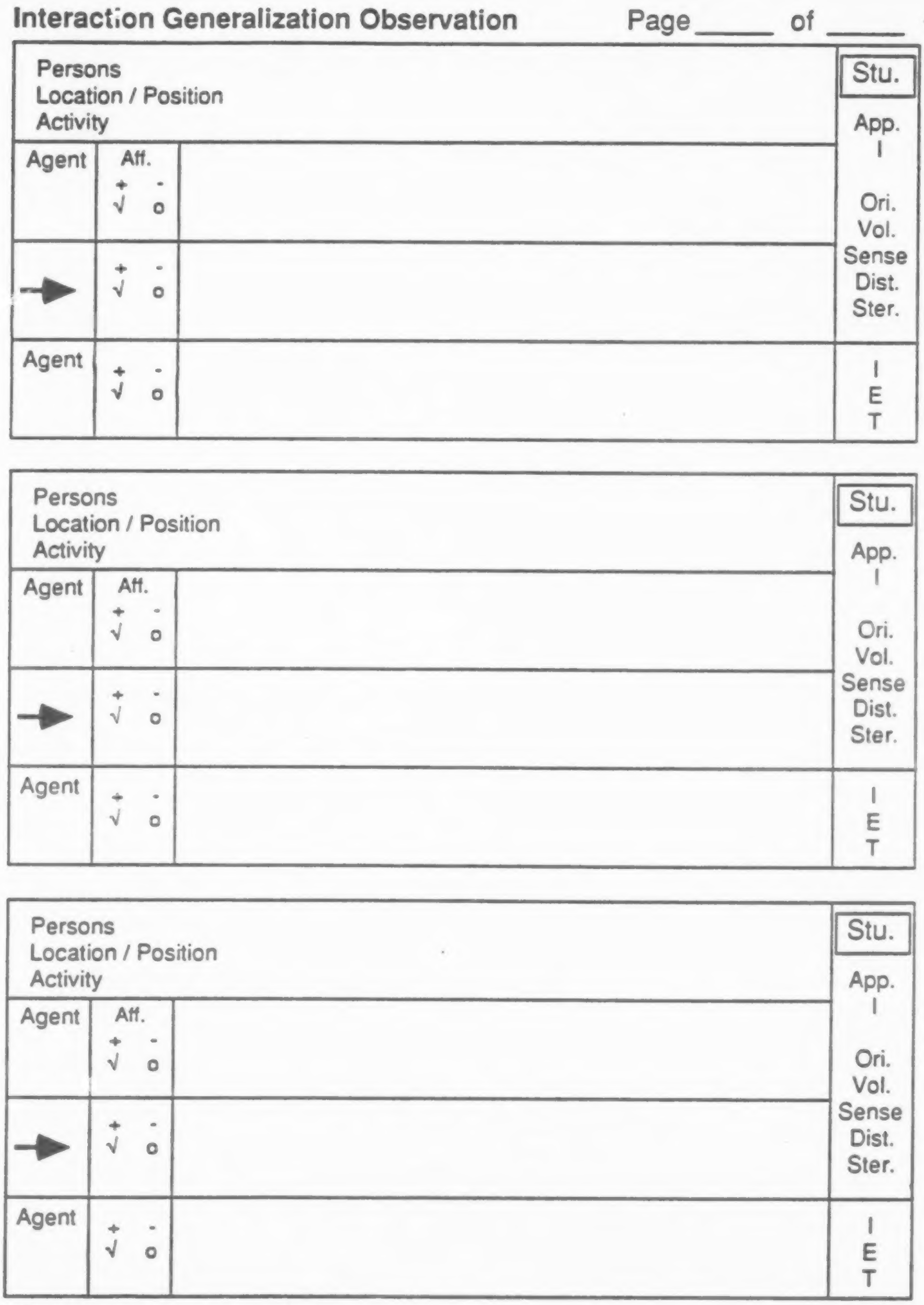
______________________ ______________________

Persons Location / Position Activity			Stu. App. I Ori. Vol. Sense Dist. Ster.
Agent	Aff. + - √ o		
→	+ - √ o		
Agent	+ - √ o		I E T

Persons Location / Position Activity			Stu. App. I Ori. Vol. Sense Dist. Ster.
Agent	Aff. + - √ o		
→	+ - √ o		
Agent	+ - √ o		I E T

(figure continues)

Figure 3.1. Interaction Generalization Observation form used for data collection during structured 10 minute observations. Page one and all other pages.



Interaction Generalization Observation Page_____ of _____

Persons Location / Position Activity			Stu.
Agent	Aff. + - √ o		App. I
→	+ - √ o		Ori. Vol. Sense Dist. Ster.
Agent	+ - √ o		I E T

Persons Location / Position Activity			Stu.
Agent	Aff. + - √ o		App. I
→	+ - √ o		Ori. Vol. Sense Dist. Ster.
Agent	+ - √ o		I E T

Persons Location / Position Activity			Stu.
Agent	Aff. + - √ o		App. I
→	+ - √ o		Ori. Vol. Sense Dist. Ster.
Agent	+ - √ o		I E T

Figure 3.1. (cont.)

staff had other tasks to complete at a generalization site where a participant was (e.g., an interview with a work staff had other tasks to complete at a generalization site where a participant was (e.g., an interview with a work supervisor). Project staff included descriptions of interactions with the students in fieldnotes. These descriptions included participant interactions with project staff and with others. They also included information about: (a) contacts with others familiar with the students (e.g., a co-worker relating a story about what happened during lunch); (b) work and school behaviors not social in nature (e.g., "Wendy was on the third floor working independently when I arrived"); and (c) contextual information about settings and the educational program (e.g., "The other students and staff were at the playing field.").

The research assistant and author met weekly to discuss fieldnotes and other data. During these meetings, the staff summarized data and discussed possible student descriptors to be used for summarizing the data, and questions and hypotheses about the observed social interactions. These descriptors and hypotheses then guided the types of additional information that were of interest. For example, when one research assistant noted that motel staff seemed to be more responsive to Trudy than to Wendy, co-workers were interviewed about their perceptions of the difference between Trudy and Wendy's popularity. Testing such hypotheses assisted the research team to determine the variables that in addition to student performance that may have influenced social interactions.

Dependent Variables

Stimulus and Response Generalization

Probes for generalization were conducted weekly. These probes contained the examples from Baseline that were not used for training. A probe contained one example of each target skill selected for instruction. The order of the probe items was intended to represent a "typical" conversation. All of the extending class items on each probe concerned one topic (e.g., a magazine, work). Three separate probes were developed for each student. Students would be presented with a specific probe example only once every three weeks. Figure 3.2 shows a sample generalization probe.

The frequency of responses made to untrained stimuli and novel responses were recorded and graphed. If the response was an example of the target skill that the stimuli had been developed to assess, then the response was coded as an example of target skill generalization. For example, the stimulus: "Conversation Partner shows the student a picture in a fashion magazine and says 'I like this dress.'" was developed to elicit the student to state her opinion. If the student responded: "I like that dress, too," it would be scored as appropriate and as

Social Skills Probe

Student: ______________________ Test: 2 Date: ______ Total: __

STIMULI	CORRECT RESPONSE	STUDENT RESPONSE	SCORE
I-1 Hold up a picture of J . on break and ask, "What would you do if you saw this?"	Any greeting		
I-2 Hold up a picture of Leslie shopping and ask, "What would you say if you saw this?"	Any greeting		
I-3 Hold up a picture of J , W , and G interacting and ask, "What would you say if you saw this?	Statement about saying nothing because they are talking		
E-4 Peer enters room, sits down, offers hand to shake, and asks, "How are you doing?"	Answers and adds comment or asks question. Disengages handshake after 1-2 seconds		
E-3 Peer says, "I've been feeling tired lately."	Repeats "tired" and adds new information about the subject		
E-6 Say, "Find out what peer will do after work " Peer responds to question	Student waits for response and comments about answer OR adds relevant information		
E-1 Peer says, I like to relax after work and before dinner."	States opinion in a sentence		

(figure continues)

Figure 3.2. Sample Probe Data Form used for recording student responses during generalization probe sessions.

90

Figure 3.2. (Cont.)

Social Skills Probe

Student: ______________________ Test: 2 Date: ______ Total: ___

STIMULI	CORRECT RESPONSE	STUDENT RESPONSE	SCORE
E-5 Peer asks, "What kind of work do you do?"	Answers question in a word or phrase. Expands with another question OR new information OR a reason for answer		
O-2 Peer stands next to chair so Theresa can't get up. Say, "Walk over to Glynnis with peer"	Uses "Excuse me"		
O-3 Say, "Introduce your friend to Tootie."	"This is (peer name)."		
O-1 Both return to seat. Say, "Talk with peer about going out for dinner."	Student should initiate 4-turn conversation	App ______ Inapp ______	
T-2 Peer looks away, [illegible] distracted for 20 seconds	Any termination		

an example of target skill generalization. If she responded: "Um-hum," although the response may have been appropriate, it was not scored as an example of target skill generalization.

The untrained stimuli were presented to the student and responses recorded as correct or incorrect to assess stimulus generalization. Untrained responses were recorded to assess response generalization. For example, if a student who had been trained to say "See you later," or "Bye," to terminate a social interaction, says "See you tomorrow," this would be recorded as a novel response.

Procedural Reliability

Procedural reliability was assessed to assure that instructional programs were implemented as described. An independent observer would record whether or not the teacher and/or peer: (a) presented the instructional cue; (b) waited the correct time delay; (c) provided feedback and prompts after incorrect responses; and (d) provided reinforcement and specific feedback after correct responses. The observers included one classroom teacher, two research assistants and the author. The individual instructing social skills was given feedback following the sessions during which procedural reliability data were collected. Percent correct was calculated for procedural reliability by dividing the number of correct responses the instructor made in each category by the total number of correct responses and errors.

Generalization to Post-School Environments

Generalized social responding was measured by recording all interactions involving the target student during ten minute intervals. Social interaction was measured in current school environments before training began to assess baseline rates of social interaction and following each phase of instruction to determine when generalization began to occur. Follow-up measures in the post-school environments, for Doris and Trudy, were conducted at three- and six-month intervals following the students' graduation to determine if the skills were maintained. For Wendy, follow-up measures were collected one month after the end of instruction. Nine observations were conducted in at least three sites for each follow-up phase. The observer recorded all interactions involving the target student during the ten minute interval using the Interaction Generalization Observation Form (Appendix D). Table 3.3 indicates where the observations were conducted for each student and during each phase.

Social Validation

Because social skills are related to success in community and vocational placement, a measure of the clinical or applied importance of the trained skills was undertaken. Social validation (Kazdin, 1982) of the

Table 3.3

Interaction Generalization Observations Environments

Doris	Trudy	Wendy
	Baseline	
Work Break Area	Work--Laundry Room	Work--Laundry Room
School Cafeteria	Fast Food Restaurant	Fast Food Restaurant
	Intervention	
Fast Food Restaurant	Work--Laundry Room	Work--Laundry Room
Work--Break Area	Fast Food Restaurant	Fast Food Restaurant
Picnic	Picnic	
Dance		
Classroom		

(table continues)

Table 3.3 (cont.)

Interaction Generalization Observations Environments

Doris	Trudy	Wendy
First Follow-up Phase		
Fast Food Restaurant	Lunch--Break Area	Work--Break Area
Shopping Mall	Fast Food	Fast Food
Picnic	Restaurant	Restaurant
Home		
Pharmacy		
Second Intervention or Follow-Up Phase		
Department Store	Work--Break Area	
Restaurant	Restaurant	
Work--Break Area	Fast Food Restaurant	
Fast Food Restaurant		
Grocery Store		

relevance of the skills selected for instruction, the importance of the change in skill performance, and the appropriateness of training procedures was conducted. Parents, employers and others with whom subjects frequently interacted were asked to evaluate the importance of the change in student performance after training.

Parents or caretakers and teachers were interviewed before and after Intervention. These respondents were asked to describe the student's typical social interactions, the student's strengths in social settings, and the student's needs to improve social interactions. This information was summarized into lists of student characteristics, strengths, and needs. The respondents reviewed the summaries and made corrections to verify that each summary was an accurate interpretation of the respondent's impression of the student's performance.

This interview process was repeated following the intervention. Additional questions regarding the significance of the gain of social interaction skills, the relevance of the skills taught to the student, and their reaction to the training program were included in parent and teacher post-intervention interviews. Parents and teachers were also asked if they would recommend or use the program for other students with severe disabilities and to state their reasons. Interview guides are located in Appendix B.

The pre-intervention and post-intervention interviews were compared to each other to determine if intervention made a noticeable difference in performance. Post-intervention interviews were also conducted with non-disabled peers and co-workers who had interacted with the students in generalization settings. These interview results were compared to teacher and parent descriptions to discover differences and similarities in perceptions of the students. Finally, interview results were compared to generalization observation results to determine if changes in others' perceptions of the student as measured in the interviews were reflected in the observations

Instrumentation

Classroom Program

Three observation measures were employed in the study. The first two measures were developed to measure the effectiveness of the instructional program within the instructional environment. These measures included the training data sheet and the probe data sheet.

Training Data Forms

The first of these was used to measure student progress in responding to training cases. The teacher recorded student responses as either incorrect or correct and as occurring either before or after the prompt. (See Figure 3.3 for an example training data sheet.)

Probe Data Forms

The second instrument was used in the classroom to measure the effectiveness of the social skills training

TRAINING DATA
SOCIAL SKILLS PROJECT

Student: ____________________ Skill: ____

Preparation: ____

Correct Response: ____

Instruction: ____________________________ ______________________________________

Scoring:

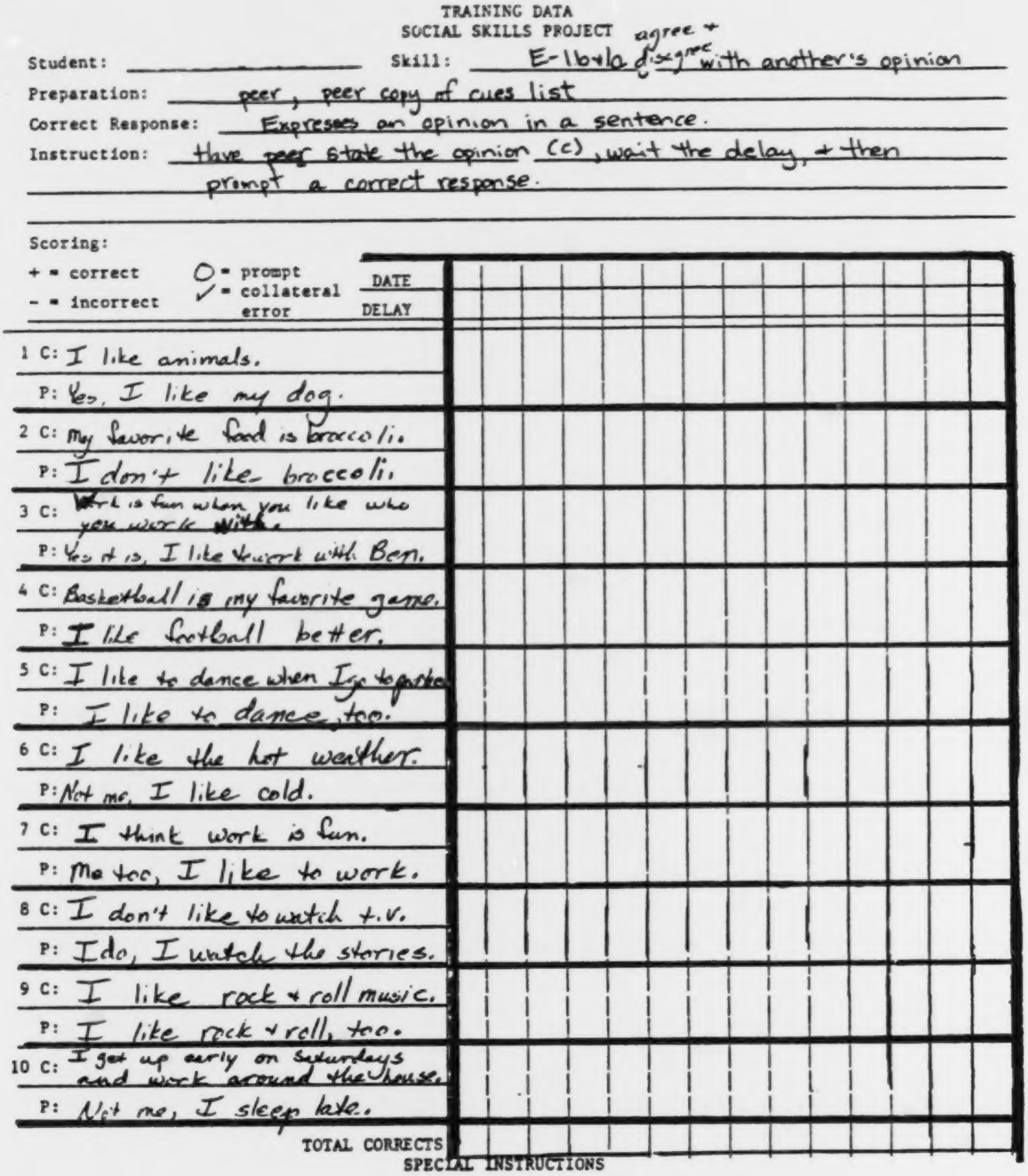
+ = correct ○ = prompt
- = incorrect ✓ = collateral error

DATE														
DELAY														
1 C:														
P:														
2 C:														
P:														
3 C:														
P:														
4 C:														
P:														
5 C:														
P:														
6 C:														
P:														
7 C:														
P:														
8 C:														
P:														
9 C:														
P:														
10 C:														
P:														
TOTAL CORRECTS														

SPECIAL INSTRUCTIONS

(figure continues)

Figure 3.3. Instructional Data Form, one complete and one blank form, used for data collection during instructional sessions.



TRAINING DATA
SOCIAL SKILLS PROJECT

Student:

Skill: E-1b+1a agree + disagree with another's opinion

Preparation: peer, peer copy of cues list

Correct Response: Expresses an opinion in a sentence.

Instruction: have peer state the opinion (c), wait the delay, + then prompt a correct response.

Scoring:

+ = correct
- = incorrect
○ = prompt
✓ = collateral error

DATE

DELAY

1 C: I like animals.
P: Yes, I like my dog.

2 C: My favorite food is broccoli.
P: I don't like broccoli.

3 C: Work is fun when you like who you work with.
P: Yes it is, I like to work with Ben.

4 C: Basketball is my favorite game.
P: I like football better.

5 C: I like to dance when I go to parties
P: I like to dance, too.

6 C: I like the hot weather.
P: Not me, I like cold.

7 C: I think work is fun.
P: Me too, I like to work.

8 C: I don't like to watch t.v.
P: I do, I watch the stories.

9 C: I like rock + roll music.
P: I like rock + roll, too.

10 C: I get up early on Saturdays and work around the house.
P: Not me, I sleep late.

TOTAL CORRECTS

SPECIAL INSTRUCTIONS

Figure 3.3. (Cont.)

procedures to produce stimulus and response generalization. Three generalization probes were developed for each student. (See example in Figure 3.2.) Each probe contained one example of a stimulus to elicit each skill selected for instruction. The examples were ordered to reflect a conversational interaction. The teacher recorded the exact student response and collateral errors if they occurred. These responses were later scored in two ways: (a) as an example of stimulus generalization of a target skill; and (b) as an example of response generalization. This technique was selected because: a) it addressed response to natural cues, b) it reflected general classes of stimuli and responses, and c) it assessed at what point response generalization and stimulus generalization began to occur.

Validity. The validation issue of primary importance for these measures was content validity or whether the instrument measured progress on instructional objectives. These two instruments were evaluated by a group of teachers of students with severe disabilities and the researcher's dissertation committee, which included members with expertise on teaching students with severe disabilities and instrument construction. The committee members approved the data collection measures in the proposal process. The first two classroom teachers reviewed and approved use of the measures before their use was implemented.

Reliability. Interobserver reliability sessions were conducted for 29% of the generalization probe sessions. The classroom teacher, two research assistants, and the author participated in the data collection and in reliability testing. The author or a research assistant observed the individual implement probes or instruction. Observers and the instructor were situated in a way which allowed observation of the student, without the observation of the other observer's data sheet. Data were compared on a response-by- response basis. The percentage of agreement was determined by dividing the number of agreements on: (a) occurrence and nonoccurrence of a response; and (b) the classification of response as an example of generalization by the sum of agreements and disagreements. This ratio was multiplied by 100.

Interobserver reliability sessions were conducted for 28% of the instructional sessions. The procedures and calculations for reliability data collection were the same as those used for the generalization probe sessions. The percentage of agreement was calculated on a response-by-response basis for: (a) independent corrects; (b) prompted corrects; (c) errors before the prompt; and (d) errors after the prompt.

Generalization to Post-School Environments

Interaction Generalization Observations

A fourth measure was employed in generalization settings. This measure was similar to that employed by Brinker (1985) to measure social interactions in school settings. This procedure was a modification of the APPLE, a naturalistic classroom observation procedure developed by Lambert and her colleagues (Lambert, Hartsough, Converse, & Converse, 1977; Lambert & Hartsough, 1976). Observers were trained to first record characteristics of the environment and then to record all interactions involving the target students during a 10 minute sample.

Structured observations were conducted in the generalization sites. Detailed descriptions of student behavior were recorded. Because the study examined complex social responding, a descriptive data collection procedure was chosen in which the social skills performed by the student were recorded. This procedure was selected to avoid a weakness of earlier studies, in which the complexity of social behaviors was ignored.

As with Brinker and Thorpe's (1984) Interaction Observation System, the observer recorded each social behavior directed to the target student and each social behavior the student directed towards others. In addition to verbal exchanges, social behavior was defined as:

> "movements directed toward another person. Physical orientation of the face, hands and body toward another individual within four feet would be evidence for inferring that a behavior was directed to another. Vocalization combined with physical gestures such as reaching or with visual fixation on another person would also be clues to inferring that a behavior was directed to another." (Brinker & Thorpe, 1981, p. 16).

The observer began the observation by recording the setting characteristics, the location, date, time, activity, and persons accompanying the student to the site, the number of persons at the site within four feet of the student, and the student's orientation to others. Then the observer recorded as accurately as possible all social behaviors directed to the student and from the student to others. Responses were coded during the observation as either: (a) being positive (agent displays an obvious element of happiness such as smiling or laughing), (b) being negative (agent displays an obvious element of sadness or anger such as crying, screaming, or criticizing), or (c) being neutral (all others). Additionally, student behaviors were classified as appropriate or inappropriate. Inappropriate behaviors were subdivided into five categories: (a) orientation errors (e.g., lack of eye contact); (b) volume errors (e.g., not audible to conversation partner); (c) sense errors (e.g., responses unrelated to the topic of conversation); (d) distance errors (e.g., speaking to someone in another room); and (e) stereotypic behaviors (e.g., social bid accompanied by "hand flapping"). Observational notes included when the setting characteristics changed (e.g. when someone entered or left the four foot range) and comments explaining appropriateness ratings if related to a behavior other than those defined a priori (e.g., an interruption). Duration was measured by starting a stopwatch with each initiation and stopping it after 20 seconds of no interaction or after a termination response. These events were coded as the end of an interaction cycle.

Each observation lasted for 10 minutes. The observers immediately examined their notes and edited them so they were legible and included the maximum amount of information possible for that observation. The procedures of observing, collecting notes, and immediate editing were selected because accuracy of these procedures had been demonstrated by others. Brinker and Thorpe (1984) were able to train raters to an accuracy rate measured by Pearson Product correlation between rater scores of .81 and .92. Also, the use of 10 minute time samples were effective for demonstrating changes in responding in the Evaluation of Integration Project (Brinker & Thorpe, 1984) and in the Foxx et al. study (1986).

Following the observation, student responses were further classified according to the categories employed for training (i.e., initiations, expansions, and terminations). Initiations were those behaviors which serve to begin interactions with another. Extensions followed another individual's response and could serve to extend interaction. Terminations were those behaviors that served to end interactions. Additionally, each remark was coded according to: (a) the type of remark; (b) the instance of generalization of a skill that had been trained; (c) an instance of a collateral error; (d) the topic of the remark; and (e) whether or not the remark changed the topic.

Validity. Evidence was collected to determine whether the observation system measured social skills functioning, whether the measures reflected generalization of the social skills targeted for training, and whether the measure reflected gains in social skills. The Interaction Generalization Observation Form (IGO) was a modification of naturalistic procedures used by Brinker (1985) to measure social interaction in integrated settings. The modified observation system, IGO, was evaluated to assure that it still reflected social interactions. During the development phase of the instrument, the author met with dissertation committee members to discuss and review the instrument. Collectively, committee members had expertise in the areas of: (a) students with severe disabilities; (b) measurement of social interaction; (c) social interactions between persons with disabilities and those without disabilities; (d) instrument construction; and (e) qualitative methodology. The observers (i.e., author and research assistant) field tested the instrument and proposed changes. The changes were discussed with committee members. The final instrument reflects their recommendations.

Once the final instrument used for the study was completed, a more formal review process was conducted. Questionnaires were distributed to committee members and four others with expertise in the areas of social interactions and individuals with severe disabilities. The reviewers were asked to rate the validity of the instrument on these criteria: (a) to serve as a measure for the variables used in the study; (b) to provide information for social interaction descriptions; and (c) to compare student performance across times and across conditions.

In addition to expert review, a pilot test was conducted to determine if the instrument differentiated between groups of students classified as deficient in social skills and those identified as not being deficient in social skills. The pilot test was conducted in a middle school classroom for students with disabilities during a special friends program. Students from typical fifth and sixth grade classrooms joined the students with disabilities for leisure time activities such as slot car racing and board games. The classroom teacher selected four students for the pilot study: the two students exhibiting the lowest level of social skills performance and the two students exhibiting the highest level of performance. The observers were uninformed of the teacher's rating of the students. Each student was observed using the Interaction Generalization Observation Form during one ten-minute interval. The results of the four observations were compared to determine if the IGO differentiated between the two groups (i.e., the two students rated as having the lowest level of social skills performance and the two students rated as having the highest level of social skills performance).

Reliability. Two types of reliability data were collected for the IGO, interobserver reliability and coding reliability. Percent agreement on occurrence and non-occurrence of responses in each category were calculated during observer training. The Kappa coefficient (K) was employed for response-by-response reliability during the study. Pearson product moment correlations (r) were also calculated on frequency data. Kappa coefficients were used to calculate inter-coder reliability.

The author and the research assistants were responsible for the measurement of social responding in the generalization settings. They practiced observations independently until the average rate of reliability across all categories was not less than 80% and no one category of reliability less than 60%.

Both occurrence and nonoccurrence reliability were computed for the following categories during observer training: a) the target student's response, b) the stimulus for the response c) the consequence for the response; d) the affect (i.e., positive, negative, neutral or none); e) the category (i.e., initiation, expansion, or termination); f) the appropriateness of student response; and g) the reason for inappropriate coding (i.e., volume, orientation, distance, sensibility, or stereotypic behaviors); h) the end of the interaction cycle; and i) the changes in setting.

Practice on the generalization measure occurred in both generalization and school settings before the Baseline Phase of the study began. When reliability criteria were reached, both the author and research assistant began completing generalization observations. A second research assistant was employed during the second year of the study. A second series of practice observations was implemented for this observer.

Reliability of frequency and categorization was calibrated as agreements divided by the sum of agreements plus disagreements, multiplied by 100. Occurrence reliability was based on the events that at least one observer coded. Computation of nonoccurrence reliability was based upon all responses that could have been coded including absence of responses. Reliability for time in interaction was reported as the percent time in agreement during the 10 minute observation interval. In addition to reliability on each social skill, correlations were also computed for the variables that could be calculated as frequency per observation. Correlations between observers were computed for: (a) frequency of social bids to the student; (b) frequency of student social bids; (c) duration of time spent in interaction; (d) frequency of affects; (e) frequency of collateral errors; and (f) frequency of types of remarks.

The two observers met after each reliability observation session and discussed the disagreements and other questions arising from the observation. These sessions served as training updates for observers to clarify definitions and determine the depth of information to be included on the IGO form to make records complete.

Summative reliability. The use of percentage of agreement was discontinued after the Preliminary Phase of interobserver reliability because the data for some categories were highly variable (e.g., the number of bids per observation ranged from (0 to 129) and the frequencies for some categories were consistently low (e.g., interrupting others at work). Occurrence agreement is an appropriate measure for behaviors that occur at low rates, and nonoccurrence agreement is recommended for behaviors that occur at high rates. The percentage of agreement on occurrence of behavior would have been inflated when high rates of behaviors occurred and the nonoccurrence agreement would have been inflated when low frequencies of behavior occurred (Harris & Lahey, 1978; Hartman, 1977). Therefore, different indices were used to measure reliability during the ongoing reliability phases of the study. The Kappa coefficient (Cohen, 1960) was used to determine reliability for each individual bid, and the Pearson product-moment correlation ($\underline{r}$) was used to determine the reliability for frequencies across observations.

The Kappa coefficient was selected to calculate ongoing interobserver reliability because it is a flexible index that: (a) accommodates categorical and interval data; (b) corrects for expected chance agreement through proportional adjustment for differing rates of behavior; and (c) is among the most frequently recommended reliability coefficients (Cohen, 1960; Kazdin 1982; Suen & Ary, 1990). The Kappa coefficient is calculated by dividing the difference between the actual observer agreement and the expected chance agreement by the total possible difference between observer agreement and expected chance agreement. "Thus, Kappa is the ratio of actual nonchance agreement divided by total possible nonchance agreement" (Suen & Ary, 1989). Typically, the Kappa is applied to interval data.

The Kappa coefficients were calculated for those categories that were coded point-by-point or bid-by-bid. These categories were: (a) activity; (b) type of remark; (c) repetitions; (d) beginning and ending of interaction cycles; (e) student generalization; (f) speaker; (g) change of topic; (h) topic initiator; and (i) location. (Category definitions are located in Appendix E).

In addition to Kappa coefficients, Pearson product-moment correlations were also calculated to assess the interobserver reliability. Kazdin (1982) recommends the use of the Pearson to evaluate observer agreement "over the entire course of an investigation." Rather than making a point-by-point comparison, the Pearson product-moment correlation compares the total frequencies for each observation. The correlation estimates reliability "across all occasions" rather than "agreement on any particular occasion." Pearson *r* compared the totals of each observer's scores across all occasions on which reliability was assessed. The formula for the Pearson *r* is:

$$r = \frac{N\sum XY - \sum X \sum Y}{[N\sum X^2 - (\sum X)^2]\ [N\sum Y^2 - (\sum Y)^2)]}$$

or *r* is equal to the amount of observations multiplied by the product of X and Y minus the product of the sum of X and the sum of Y divided by the product of the amount of observations multiplied by the sum of X^2 minus the square of the sum of X and the amount of observations times the sum of Y^2 minus the square of the sum of Y. The *r*s reported in this study were calculated through the use of SPSS version 4.0 statistical package (1990).

Pearson *r*s were calculated for the categories of behavior that were reported as frequency of occurrences per observation. These categories were: (a) the potential conversation partners present; (b) the participating conversation partners; (c) the activity; (d) the frequency of social bids; (e) the type of remark; (f) the repetitions; (g) the interaction cycles initiated; (h) the amount of time engaged in interaction per observation; (i) the frequencies of generalization; (j) the average time engaged in interaction cycles; and (k) the number of social bids per interaction cycle.

The Pearson r also had weaknesses in application to the data. It provided no information about point-by-point agreement, the difference in the proportion of frequencies between observers, or the possible inflation caused by changes in behavior across phases. Both of the reliability coefficients, the Kappa and the Pearson r, were reported to provide the maximum amount of information possible.

Finally, Kappa coefficients were calculated for inter-coder reliability. Coding reliability was completed on a response-by-response basis. Coding reliability was completed on 22% of the Interaction Generalization Observations selected by use of a random numbers table. Two raters (the author and one research assistant) coded the 17 IGOs independently.

Social Validation Ratings

Parents, teachers, and work supervisors were asked to rate student performance on skills selected for training and on frequency of collateral errors. (The forms used for the rating interviews are located in Appendix B). The ratings were completed twice, once before training and once after training on all skills was completed. Respondents were asked to rate student performance of each skill as: (a) does not perform the skill; (b) performs the skill but with mistakes; (c) performs the skill correctly sometimes; (d) performs the skill correctly about half the time; or (e) performs the skill correctly most of the time. Differences in ratings of the skills after the student was instructed would validate the change in student performance on those skills.

Validity. The skills included on the rating form were selected from three sources: (a) observation of interactions in the social environments that students were expected to use; (b) interviews of consumers in those environments (i.e., individuals who used restaurants, shopping malls, and parks, and work supervisors); and (c) interviews of students' parents and teachers regarding student performance in social interactions. The respondents (i.e., parents, teachers, and work supervisors) were asked to rate student performance on skills that had been observed and that had been considered relevant to the generalization environments by the consumers.

Reliability. Procedures were used to determine the test-retest reliability of the ratings of student behavior. The classroom teacher and one observer repeated the measure twice for one student. Student ratings were randomly selected for the reliability tests. The second rating was completed one day after the first rating.

Results were analyzed in two ways. First the percentage of agreement was determined by dividing the number of skills rated the same on both measures by the total number of skills on the rating guide. The second measure was to calculate the amount of disagreement by subtracting the amount of difference between the two ratings. For example a rating of "1" or "does not perform the skill" on the first measure, and a rating of "2" or "performs the skills with mistakes," was counted as a difference of one.

Student Descriptions

Descriptive information about student participation in social interactions was based on observations, fieldnotes, and interviews. Some of the descriptive information emerged during the course of the study and some was selected a priori. Before beginning the study, it was determined that interview respondents would be asked to describe the student during social interactions, to list the student's strengths in social situations, and to list the student's needs for social skills. This information was collected to validate changes in student social skills performance.

During the course of the study, it became increasingly apparent that factors other than student performance influenced interactions. For example, although all of the students were enrolled in a community-based training program, some students did not seem to have much opportunity to interact with non-disabled peers. This lack of opportunity may have had a significant influence on student performance. Additionally, during debriefing meetings, observers noted that students performed differently with different conversation partners. It was also noted that interactions between one peer and one student could be different from one day to the next. In order to address questions about what was influencing the social interactions beyond student performance, descriptive data were analyzed to describe the factors other than student skill level that seemed to be interacting with student performance and the social interactions.

Internal Validity

Internal validity refers to the confidence one has that the relationship between two variables is causal or that the absence of the relationship indicates an absence of cause (Cook and Campbell, 1979). Lincoln and Guba (1985) describe the issue in naturalistic inquiry as whether or not the constructs presented are representative of what was observed. Four of the five procedures that they listed to establish credibility were employed in the analysis of observational and interview data for this study: (a) procedures to establish credibility; (b) peer debriefing; (c) member checks; (d) negative case analysis.

Activities to establish credibility. The first procedure consisted of three activities that increased the likelihood that credible findings and interpretations were produced. These activities included prolonged engagement, persistent observation, and triangulation. First, to accomplish prolonged engagement, the investigators must remain in the environment long enough to learn the "culture, to test misinformation, and to build trust" (Lincoln & Guba, 1985). In this study, researchers were involved with participants over the course of 18 months. Next, observations were persistent in that they were conducted repeatedly in multiple environments. Finally, triangulation (Miles & Huberman, 1984; Lincoln & Guba, 1985) was accomplished across types of data, across observers, and across informants. The categories that emerged from interviews were compared with fieldnotes and with the structured observations. Three observers collected data and tested their interpretations of the findings with one another. Final categories were tested by determining whether or not they emerged from the interview results of multiple informants, and were supported by observational data.

Peer debriefing. The next activity to establish credibility was to monitor the inquiry process. The author met every other week with the committee chairperson to discuss progress of the research. Whenever the researcher decided that new methods of inquiry were indicated or when the boundary of the study shifted, she discussed this with the other members of the dissertation committee. In addition to these debriefing meetings, the observers met together weekly to discuss working hypothesis and determine the next types of data collection and analysis that were needed to confirm or discredit the hypothesis.

Member checks. The third procedure, member checks, refers to the process where interpretations and conclusions are evaluated by the participants from whom the data were originally collected. Member checks were conducted formally and informally during the course of this study. Interview respondents were asked to review and approve or make necessary changes in interview summaries to assure that the summaries reflected the respondent's own meanings in the interviews. The categories used in the final results were based on these affirmed summaries. A second member check was conducted during the final interview phase. Respondents were asked about categories that the author had proposed based on the observations and trial hypotheses generated over the course of the study. Informally, when questions or hypotheses arose during debriefing meetings, these would be "checked" with others in the students' environments, and responses recorded in fieldnotes.

Negative case analysis. The fourth strategy recommended by Lincoln and Guba (1982) is negative case analysis. A pure negative case analysis was not applicable in this study. However, a record was kept of the categories, questions, and hypotheses that developed during the course of the study. In this way, the auditor could evaluate the ways in which categories were revised to "fit" the data as the data were collected, rather than interpretation of the data to "fit" the categories.

External validity. Generalizability, or external validity of the descriptive data, was not intended by this study. Readers could determine whether or not the same factors were influencing other interactions and if the categories were transferable to the interpretation of other social interactions based on the detail presented in the results. Through the provision of sufficient detail in the descriptive summaries, others could determine if the findings were transferable to their question of interest. The activities conducted for internal validity and reliability should assure the reader that this interpretation is trustworthy and the results should contain enough description to allow the reader to determine the transferability of the data.

Reliability

To assure that the interpretation of this data was dependable or applicable to the particular students and context of this study, and that the interpretation was confirmable or could be traced to the raw data, an audit was conducted. The author maintained the records needed for an audit recommended by Halpern (1983). That is, the raw data was organized by type, source, and phase of the study. A record of ongoing summaries and logs were also maintained. As the summary and the analysis of the data proceeded, the author maintained lists of categories which emerged. Finally, the author and both research assistants maintained logs containing information about their activities, the procedures they followed in the field, hypotheses developed about the student interactions, and their reflections about and their reactions to observations.

An auditor with experience in both qualitative methodology and auditing was selected to review both the procedures and the results of the study to confirm the dependability of the results. The audit was based on a summative report on one of the students, Doris, conducted after the final analysis was completed. All of the data, logs, and audit trail information were available to the auditor. (The audit report and more detailed procedures are located in Appendix F.)

In addition to the audit, categories were confirmed by interview respondents. During the last series of interviews, respondents were asked to confirm or refute the categories that had emerged during the course of the study.

Data Analysis Procedures

Instructional Programs

General Case Instruction

Visual analysis (Parsonson & Baer, 1978; Sidman, 1960) of graphic representation of individual student progress across skills was employed for the initial social skills program. The percentage of examples answered correctly were graphed for Baseline. The percent of examples to which the student responded correctly and without prompts were graphed for the Intervention Phase. Finally, the percentage of examples to which the student responded correctly with no prompts and verbal feedback on a schedule of VR:3 were graphed for the maintenance phase.

Unlike Baseline, weekly probe data were represented by cumulative frequency of generalization rather than percentage. This method was selected because each probe contained only one example of each skill and the question of interest was whether or not students could generalize skills to multiple novel stimuli. These graphs demonstrate the cumulative frequency of responses to untrained stimuli. Additional information from the Interaction Generalization Observations were included on these charts. The number of times a skill was observed during an IGO or during a Practice Conversation were also recorded as cumulative frequency.

Additionally, data were presented in a multiple-baseline across students. All data were charted as a cumulative frequency of skills. The number of skills that the student had mastered, the number of skills selected for instruction on which the student had demonstrated generalization, and the number of skills not selected for instruction but to which the student responded correctly on probe trials were charted for each student.

"Loose" Training Program

The data for Doris's follow-up program were also presented as a multiple baseline across skills. The percentage of correct responses to the first ten bids she received were charted for both training and probe trials. A final phase of maintenance trials was also graphed.

Generalization to Unstructured Environments

Visual analysis was also employed to evaluate generalized social responding in post-school environments. Frequency of response, duration of social interactions, types of remarks, frequency of bids and responses to the students were reported in tabular form. These data are presented as mean performance for each student in each phase. Phases were: (a) Baseline; (b) Intervention; (c) Follow-up--three to six months following Intervention; (d)

Follow-up--seven to eight months following Intervention; and (e) Intervention 2--Doris's mediation program.

Observations had to be conducted in different environments during the course of the study. As the students' schedules changed, the environments where they spent leisure time changed. Also, students had limited opportunities to interact in the sites originally predicted to be post-school environments. Therefore, the author arranged trips to these sites to assess generalization. Because the environment may have affected student performance separate means are also reported for each type of environment.

Descriptive Data

Student Descriptions

Descriptive data included: (a) Interaction Generalization Observations (IGO); (b) interview notes, transcripts, and summaries; and (c) fieldnotes and summaries. Several types of analyses were applied to the different types of data and during the different phases of the study. During the study, ongoing data analysis was implemented. Observers completed summaries of the structured observations immediately following the observations. Finally, a formal summary form was developed for this information (See Appendix B).

The author and research assistant met weekly to summarize log notes together. They summarized the student characteristics they had observed, instances of generalization, problems in implementing the research, and working hypotheses and questions. (These summary forms are in Appendix D.) Summaries were also completed immediately after each interview.

Periodically, during the course of investigation the author reviewed summaries and data and developed lists of potential categories for analysis and questions for further exploration. This ongoing data analysis served to drive the design of qualitative data collection and assist in the development of interviews still to be conducted.

At the end of all data collection, data analysis for the final interpretation began. Several systems of analysis were tried, based on the categories and questions which had emerged during the summative analyses. However, it became difficult to develop categories that were exclusive. Finally, the method described below was selected.

Fieldnotes were sorted according to five major categories. The first three categories consisted of information about each specific student. Notes that described procedures made up the fourth category. Other data included in the procedures category concerned information such as descriptions of the school program and information about conversation partners.

The student categories were further subdivided into four subcategories. These subcategories were:

1. Social interactions. This subcategory included observations of students during unstructured interactions, such as when observers saw students interacting with others and when students were interacting with the observer at times other than instruction or practice conversations.

2. Instructional interactions. This subcategory included descriptive information about interactions that occurred during the instructional session; interactions with the teacher before and after instructional sessions; and student reactions to instruction.

3. Context data. This subcategory included descriptions of settings, reports by others to the observers about the students, and other information not directly describing a student interaction or training.

4. Procedures. Some of the procedural description also included individual student data. This information was grouped with individual student data during the initial categorization, but was included in the procedures subcategory during further analysis.

After the categorization of the fieldnotes was completed, the student descriptions reported in the interviews were categorized. For this procedure, a "constant comparative method" (Glaser and Strauss, 1967) was applied. This method involved sorting units of data into groups that appeared similar. The statements on the summaries which had been confirmed by the respondent served as the unit of analysis. The first statement describing a student social interaction, strength, or need was assigned to the first category. The next statement was examined. If the statement was similar to the first, it was put into the same category. If the second statement was different, it became a new category. This process was continued for all of the interview summaries. The categories were developed independently for each.

Interview transcripts were also analyzed during this phase of categorization. After the categorization was completed for the summary, the interview notes and transcripts were reviewed for more descriptive information supporting or refuting the categories developed for the summaries. Also, if some information in the interview did not fit with the summary categories, the information was placed in a new category.

The next data set incorporated into the analysis was the IGO observations and the fieldnotes from the "student social interaction" category. These data were evaluated as fitting or not fitting into the categories developed on the basis of the interviews. The observations that fit into the categories could be either affirmative or contradictory. Data that did not fit became representative of new categories.

Only the categories that contained triangulated information were included in the final results. Thus, to be reported, a category had to contain information from at least two of the three sources: (a) interview respondents; (b) structured observations from multiple observers; and/or (c) fieldnote data. Categories which contained only fieldnote data or only one observer's reports were eliminated to reduce the risk of observer bias. Observer categories from the summaries of data could be included if they had been confirmed by multiple informants in the final series of interviews.

Finally, the groups of data were evaluated to select a descriptor (e.g., friendly, responsive). The categories were named and the rules for describing the data making up the categories were established. This information along with detailed descriptions taken from the data formed the final results of the descriptive data. Contradictory findings were included in the discussions of those categories.

Patton (1980) describes this effort at uncovering themes, patterns, and categories as a creative process through which the analyst must rely on her own intelligence, experience, and judgement. This leaves the process open to criticisms of bias and error. However, through the use of triangulation, member checks, and persistent observation, these risks to credibility were minimized.

The author maintained an audit trail for the auditor. As the data were sorted into categories, notes were made to the source of each piece of evidence. The final categories, the audit trail, and the original data for one student were reviewed by the auditor for the final report.

Interaction Descriptions

The IGO data were analyzed so that the types of interactions in which the students participated could be described. These interactions were categorized according to two different units. First they were categorized using each social bid as a unit. Each remark was categorized according to: (a) the type of remark (e.g., yes or no question of opinion); (b) the errors associated with the bid (e.g., not audible to conversation partner); (c) the topic (e.g., food); and (d) who initiated the topic. These categories were selected based on the questions about variables that may have influenced social interactions in addition to student performance.

Type of remark was coded to address questions about how student performance may have been influenced by the bids made by conversation partners. For instance: Did Doris respond more frequently with "um-hm" or "uh-uh" when her conversation partners asked more questions limited to "yes" or "no" responses? Coding the type of remark allowed an examination of the interaction between the students and their conversation partners. Secondly, errors were coded so that collateral errors which were corrected during practice conversations could be evaluated.

The topics were coded to determine the following: (a) if some topics occurred more often than others; (b) if some topics facilitated interaction more than others; and (c) if topics were similar to the ones selected for training. The individual who had selected the topic or initiated the topic was a variable used to address questions such as: Are conversation partners more likely to continue interactions when they choose the topic than if the student chooses the topic?

The final analysis was conducted using each total observation as the unit of analysis. Categories were developed to describe whole IGOs or entire practice conversations. These categories were developed throughout the course of the study. Early in the study, the research team began to comment on differences in the interactions. Some seemed to be uncomfortable for the student and the conversation partner and others seemed to be pleasant.

Observations and preliminary analyses indicated that the difference did not seem to be related to: (a) the identity of the conversation partner; (b) the student; (c) the number of questions asked; (d) the type of interactions (i.e., IGO or Practice Conversation); or (e) the activity going on during the interaction.

What was needed was some way to clarify what was happening in the interactions that aroused the comfort level of conversation partners and observers. The author and one assistant sorted IGOs and Practice Conversion that seemed to be positive from those that seemed to be negative. Next, the author attempted to describe the interactions. Through the process of developing the descriptions, categories emerged. These categories were validated by determining if the rest of the observations fit into these categories.

Summary

The analyses for descriptive data varied according to the type of data and the questions to be answered. The interviews and observational data were analyzed to facilitate valid student descriptions which could then be used to see how student performance varied across time and environments. The data from observations were analyzed on a response by response basis to address questions about the interactions between student and conversation partner bids. Finally, a global analysis of the social interactions was completed to provide a description of the broader context of the interaction.

Chapter 4

RESULTS

This chapter is divided into three sections. In the first section, the descriptive data from interviews, fieldnotes, and observations about the students are summarized. Contradictions and similarities across respondents and across data types are discussed in this section. Next, the results of the two applied behavior analysis experiments are described. The change and consistency in the descriptive data across Intervention Phases will be discussed with the experimental results. The results of the social validation questions on the interviews will also be included in this section. The final section includes the results of content analysis of the social interactions that were observed in unstructured environments and the transcripts from the practice conversations.

Student Descriptions

The following student descriptions are based on the interviews conducted with parents, teachers, co-workers and acquaintances, the structured observations (IGOs), and the anecdotal information about the students reported in fieldnotes. The categories or student descriptors that emerged from the analysis of data across all phases of the research (i.e., Preliminary, Baseline, Intervention, and Follow-up Phases) are included. First, the procedures used to establish validity and reliability of the student descriptions are discussed. Then the categories or student descriptors are defined with examples from both interview and observational data. These categories are used again in the analysis of the results of the applied behavioral analysis experiments.

Validity

The internal validity or credibility of the results of the descriptive information was established through several procedures. These included: (a) prolonged engagement; (b) persistent observation; (c) triangulation; and (d) member checks.

Prolonged Engagement. The purpose of prolonged engagement is to enable the investigator to understand the context, to test misinformation introduced by distortions of either the self or respondents, and to build trust (Lincoln & Guba, 1985). This study extended over 18 months. The students were observed in a variety of sites. The author and two research assistants were able to test for misinformation with each other in debriefing sessions and with the students' teachers and work supervisors during frequent contacts in the field. Trust was demonstrated through permission granted by the school staff and family for research staff to escort students on outings. Trust was also shown through invitations to research staff to participate in school events such as picnics and in staff meetings concerning student programs. As the research staff drew conclusions about their observations and interactions with the students, they checked conclusions with each other and with others who knew the students. This was done both informally and in the interviews that were conducted during each phase of the study.

Persistent Observation. Persistent observation should ensure that the investigator has been exposed to the multiple influences of the phenomena under study. Fieldnotes about student interactions were completed 377 times during the course of the study. The author and two research assistants completed journal entries following most of their own interactions with students and the interactions that they observed between the students and others in the environment. Entries about instructional interactions were made on 102 occasions for Doris; on 52 occasions for Trudy; and on 79 occasions for Wendy. Entries about social interactions outside the training context were made 43 times following contact with Doris; 58 times following contact with Trudy; and 43 time following contact with Wendy. Additionally, reports from others having contact with the students (i.e., teachers, parents, co-workers, and supervisors) were also included in the notes. Structured observations of the students were also made periodically throughout the study. Doris was observed 31 times in 12 different settings; Trudy was observed 27 times in 7 different settings; and Wendy was observed 22 times in 7 different environments. The number of observations which were conducted, the variety of settings in which the students were observed, the variety of roles represented by interview respondents, and the variety of interaction partners that were observed provided ample opportunity to explore the multiple variables that may have influenced student interactions.

Triangulation. The results that are included in the student descriptions were triangulated across interview respondents and across types of data. Triangulation across respondents is illustrated in Tables 4.1 to 4.3. The descriptors on the Tables represent the categories which emerged from a content analysis of the interview transcripts, interviewer notes, and interview summaries that were approved by interview respondents. The table shows which respondent interviews included information about each descriptor in response to the questions regarding: (a) descriptions of students' social interactions; (b) students' strengths and weaknesses in social interactions; and/or (c) confirmation of the descriptor in the final interview. Only those characteristics that were discussed or confirmed by more than one respondent were included in further analysis. For example, no respondents confirmed that Doris's lack of understanding of what others said to her or being afraid of what she did not understand were a possible explanation for Doris's anger. Two respondents had exactly the same response, "I think Doris understands a lot more than people give her credit for." Therefore, that descriptor, "lack of understanding," was eliminated from the results. Results were also triangulated across data types. Under each category in the student description section, the results from interviews are discussed first. Data from observations and fieldnotes that support or refute the validity of the category are discussed following the interview section for each category.

Member checks. The final method of assuring the credibility of the results was to have the interview respondents or "members," review or "check" the interview summaries and make changes to assure that the summaries reflected their perceptions about student interactions and about the instructional program.

A total of 27 interviews were conducted. Four different procedures were implemented to review the summaries. During the initial phase of interviews (i.e., preliminary) the interviewer would complete the summary at the interview site following the interview and have the respondent review the summary of the interview immediately. The summaries did not include the depth of information produced in the interviews and were revised for the next phase of interviews. The interviews conducted at the end of the Intervention Phase were audiotaped and then the transcripts and summaries were sent to respondents for review. This procedure took two to four weeks for transcriptions to be completed. Due to the number of interviews conducted in the final two weeks of the research project, the transcription time would have been increased to up to eight weeks, so during the final phase a different procedure was implemented. During the final follow-up phases, the interviews were again audiotaped, but summaries were completed based on the recordings rather than transcripts. The summaries then were given to respondents for review within two days of the interview.

All but six interviews were approved in writing. Three others were approved either by telephone or personal contact. Two respondents who completed three interviews chose not to review the summaries and/or transcripts.

Eighteen respondents approved the interview summaries without changes. Five respondents made minor changes in the summaries (grammar or length of interview) which did not reflect content. Three summaries were not reviewed by respondents. Only one summary was approved with changes that reflected content. The respondent changed the wording in two of 19 summary statements. The rate of 96% complete approval of summaries returned indicates that the summaries were an accurate reflection of respondent perceptions of student interactions.

Reliability

In order to establish that the descriptive results of the interview and observational data were reliable or were an accurate and dependable account of the data, an independent audit was conducted after the analysis and summary of the data regarding Doris had been completed. An auditor was selected who had no previous familiarity with the study or with the students or other participants. The auditor was a doctoral candidate in educational studies who had received training in qualitative analysis and auditing data and had experience in auditing evaluation reports of studies employing qualitative methodology.

The auditor followed the procedures and process developed by Halpern (1983) as described in Lincoln and Guba (1985). The author presented the raw data regarding Doris including: a) all the interview transcripts; b) log and journal entries of the author and research assistants, including observations and reflective notes; c)all summaries of observations and interviews; and d) the methodology log. Additionally, the auditor was given the audit trail which indicated the location of the data supporting each conclusion.

The auditor then reviewed the data, methodology, and audit trail to become familiar with the study and to determine auditibality. The auditor and author met again to clarify research questions and the need for the audit. The auditor then began the formal audit process (Halpern, 1983) and examined the data to evaluate: (a) that the data were trustworthy; (b) that the results of the student description were confirmable in the data; (c) that the findings were grounded in the data; (d) that the inferences were logical; (e) that the category structure was useful; and (f) that the design and integration of outcomes were dependable. The auditor also examined the data for: (a) indication of researcher bias; (b) examples of negative cases or contradictory evidence; and (c) adequacy of sampling procedures. The auditor and author communicated by telephone and through mail to address questions that arose as the audit progressed.

The final audit report and Halpern's (1983) description of audit procedures are located in Appendix F. The auditor attested to the confirmability, trustworthiness, and dependability of the results in the student description of Doris. The procedures, notes, and analysis of the data regarding the other two students and regarding the instructional program are the same. The audit of data and results regarding Doris should be sufficient to attest to the reliability of the results based on the qualitative analysis of this data.

Doris

Doris's activities, school and work sites, and teachers and supervisors changed during the course of the study. These changes influenced the selection of interview respondents and the selection of contexts for observations. Doris had two teachers during the school year, Joyce was her teacher during Baseline and part of the Intervention Phase. Joyce took a different position with the district and another teacher, Dave, took her place as the classroom teacher.

Doris's work situation changed three times during the study. During Baseline, while Joyce was teaching, Doris had a job at a hotel in the laundry room and participated in community-based training. By the Intervention Phase, she was placed in a sheltered workshop for the full school day where she was supervised by workshop staff. After graduation, Doris was unemployed for approximately five months. During that time, her mother reported that Doris participated in some leisure activities in the trailer park where they lived. She would walk to the local park with teenagers or visit neighbors and listen to music. Her family also made an effort to be sure she got out more and took her shopping and out to eat.

By the end of the study, Doris was working at the workshop again. At the workshop, she was in a different group and had a different supervisor than she had when she was a student. Her mother also reported that Doris did not spend as much time with the neighbors as when she had been unemployed. She spent most of her leisure time watching television or listening to music alone in her room. Her family members also had less time for doing things with Doris due to work demands and transportation needs.

Eleven interviews about Doris's social interactions were conducted across four phases of the study. Two interviews were completed before the intervention, one with Doris's teacher, Joyce, and one with Doris's mother. After Intervention, five interviews were conducted. Her mother and teacher were interviewed again (Dave was her teacher at the end of Intervention). Additionally, two of her supervisors at work participated in an interview together. Two assistant teachers (Keith and Kim), who had participated in the practice conversations, also completed interviews after the Intervention Phase.

Three months after Doris had graduated, she was not employed. She spent most of her time at home or on outings with her family. Because no one outside the family was interacting with Doris on a regular basis, only one interview with Doris's mother was conducted during the first follow-up phase. At the time of the second follow-up phase, Doris was employed at the workshop and had completed the follow-up program for mediation to the generalization environment. Three interviews were conducted for the final phase: a) one interview with her parent; b) one with her new work supervisor; and c) one with a graduate student in special education who had been introduced to Doris during outings arranged for the collection of generalization data.

The contexts where Doris was observed also changed throughout the course of the study. Fieldnotes were collected on eighteen occasions. Log or journal entries were made following 102 contacts. Structured observations were completed 31 times. Observation data were consistently collected in school and workshop environments throughout all phases of the study. During her final school year, Doris received training at the workshop where she was later employed. Observations were made with school peers during the final phase of the study because Doris was invited to a party with her classmates. The observations in integrated environments had to be arranged by project staff. Doris was observed interacting with non-disabled high school peers at fast food restaurants and during unstructured time at school. Following her graduation, she was observed with project staff at fast food restaurants, in shopping environments, at parks, and in their homes. Doris was also observed at civic and public picnics, dances, and parties.

The following sections are organized according to themes recurring in the interview data. Each thematic section contains two parts, a summary of interview responses about each descriptor and a summary of observational data that supports or refutes interview respondents' perceptions of the students interactions. Responses to questions about Doris social interactions were divided into six thematic sections: (a) types of interactions; (b) selection of interactions; (c) style of interaction; (d) moodiness; (e) behaviors described with disapproval; and (f) motivation for negative behaviors. The interview respondents who referred to each category are listed in Table 4.1.

Types of Interactions

Interview data. Doris tended to participate in short interactions. Her participation tended to be more in response to others than initiative. The amount of participation in interactions did show variability. She was more likely to interact with people that she knew well than with people with whom she was less familiar.

The interactions in which Doris was involved tended to be brief, this was noted in descriptions of Doris's interactions by her teacher, an assistant teacher and by her mother. Doris's need to continue interactions was

Table 4.1

Triangulation of Doris's Description

Categories Across Interview Respondents

	Interview Respondents							
Descriptor Category	P	T1	T2	A1	A2	WS1	WS2	ACQ
Types of Interactions								
Brief	X	X		X				
Responsive	X		X	X	X	X		
Variable	X	X			X	X	X	
Selection of Interactions								
Loner	X	X	X	X	X	X		X
Interacts with Others	X	X	X		X	X	X	
Style of Communication								
Short phrases			X				X	
Difficult to understand	X	X		X			X	
Posture and orientation	X						X	X
Positive	X	X			X	X		X
Moody	X					X	X	X
Fantasies		X		X			X	
Behaviors Described as Negative	X	X			X		X	X

(table continues)

Table 4.1 (cont.)

	Interview Respondents							
Descriptor Category	P	T1	T2	A1	A2	WS1	WS2	ACQ
Motivation								
Attention seeking	X	X					X	
Misunderstood	X	X		X			X	X
Control	X							X
Self esteem	X			X		X	X	
Inconsistent contingencies	X					X	X	
Grief	X							X

P = Parent T1 = First classroom teacher
T2 = Second classroom teacher A1 = Assistant teacher
A2 = Another assistant teacher
WS1 = First two work supervisors
WS2 = Second work supervisor ACQ = Acquaintance

mentioned in six of the interviews. For example, her second teacher during the study, Dave, said, "She does need to expand conversations" (Post-intervention). An assistant teacher described Doris as "tries to say as little as possible" (Assistant Teacher 2; Post-Intervention Interview).

Doris's participation in conversations seemed to be more responsive than initiative. Her mother said that Doris listened to conversations, but did not initiate them. Her supervisors at the workshop, while Doris was a student noted that Doris answered when somebody else spoke to her, but she did not initiate. This interactive style was noted by two assistant teachers, and Doris's second teacher, Dave.

Several interview respondents noted that Doris's responses in social interactions were variable. Her first work supervisors noted that Doris responded differently to positive and negative feedback and that she tended to be more responsive to men. Her second supervisor noted that Doris responded better to people she knew well. Doris's mother noted that Doris was more response to Doris's niece than to her mother. Being able to interact with her classmates, with people she knows well or favored people, and with children was noted in seven interviews.

Observational data. The observational data supported interview respondents in that Doris interactions tended to be brief. The average time of Doris interactions during IGO's was 4.49 minutes or 45% of the 10 minute observation. She also tended to have short cycles during most of the interactions. She did not maintain interactions around one topic for several turns. There were a few exceptions. The IGOs and informal observations which were completed with non-disabled high school peers demonstrated that Doris could have extended interactions. She also participated in some interactions of 20 minutes with the author, sometimes about magazines and once telling a story about her brother.

The observational data did not fully support that Doris interactions were primarily responsive. Doris showed a tendency toward being more responsive than initiative in the school setting, although Doris always chose the area of the classroom for instruction and when to start work for social skills instruction. Doris typically would refuse to begin work until her teacher sat where Doris had directed and Doris said it was time to begin work.

> "When I [teacher] gave her [Doris] the 'Be ready in a few minutes' cue, she said 'no, uh-huh,' but seemed to be joking. I asked her to work like she always does and she said 'Oh okay, I'm ready, go ahead.' This exchange is typical. It occurs almost daily." (Research Assistant 1, Intervention, seventh month)

Doris would sometimes also initiate with the instructional staff.

> "Doris seemed in good spirits. As we were setting up, she touched my arm and said, 'I like your shoes.' I thanked her. She said she was going to get a pair. She really seemed happy when Chris [non-disabled

> peer] arrived. She wanted to sit next to him and gave him many sidelong glances as we got started." (Research Assistant 1, Intervention, fifth month)

During the structured observations, Doris initiated the majority of topics discussed. Even those topics initiated by her conversation partners were often returning to earlier topics that Doris had initiated. Doris initiated 95% of interactions and selected 53% of topics discussed during IGOs.

The data already discussed indicated that Doris's type of interactions were variable. She seemed to prefer interactions with non-disabled high school peers than with instructional staff. She also showed preference among staff and co-workers for choosing to interact. For example, one day when trying to begin an interaction with a substitute teacher, another teacher responded. Doris withdrew from the interaction.

> "She [Doris] entered the cafeteria with a lot of energy and loud 'hello's for everyone. She hurriedly got her lunch and sat next to Bill, the handsome substitute aid. She even tickled him and laughed (flirting) and pretended to choke in order to get his attention. When Kim [assistant teacher] gave her the attention, she immediately stopped choking. She didn't attempt any conversation." (Research Assistant 1, Intervention, fifth month)

when she was scheduled to have practice conversations with one assistant teacher, Doris would keep her head down on the table. However, when Dave was to be the conversation peer, Doris hurried her teacher through training because "he's waiting."

The observational data supported the interview data in that Doris did participate in brief interactions and she demonstrated preferences for interaction partners. However, the observational data indicated that Doris initiated most of her own interactions in leisure and/or social environments.

Selection of Interactions

Interview data. Interview responses about Doris's selection of interactions was contradictory. Seven of the nine interview respondents indicated that Doris often chose not to participate in interactions. Doris's mother and Keith, Assistant Teacher 2, both used the word "loner" to describe Doris. Annie (Acquaintance) agreed that it was an apt descriptor in the final interview phase. Joyce said Doris "chooses to be left alone." Both, Dave, and her mother noted that Doris preferred to listen to music by herself with headphones when given a choice about how to spend her free time. When she was at the workshop the second time, Doris sometimes spent break time alone, sitting in a stairwell.

However, five respondents indicated that Doris chose to participate in interactions. Her mother said she loved children and would play with them and help care for them. Doris's mother also indicated that Doris loved to go on outings with others and would visit her neighbors. Her second work supervisor disagreed with the term "loner" as an appropriate descriptor stating, "now, occasionally, but I think that's good, I think to want to be by yourself every once in awhile is okay, to need that."

Observational data. Of the fieldnotes and log entries where Doris choice to interact was mentioned, she chose to interact on 26 of 40 instances. During some observations, Doris would exhibit both the choice to participate and choice to be alone. For example, she attended a picnic, given by a Civic group, with the author. Doris went for walks twice with members of the organization, once went for a walk and picked flowers and once listened to music. She seemed to be instrumental in organizing a basketball game that was joined by five other picnickers. In contrast, she sat by herself at one of the picnic tables for awhile and left the group to sit by herself twice.

Doris's choice to interact at school also varied. She was observed to sit and talk with no one at lunch and at a friend's birthday party. However, as noted in the section on "types of interactions," Doris also initiated most of the interactions in which she was observed. This would indicate that although Doris was described as being a "loner" and choosing not to participate in social interaction by most respondents, she chose to interact in most of the observed interactions.

Style of Communication

Interview data. As indicated in the "Type of Interaction" category, Doris had brief interactions and tended to respond to others more than she initiated. When she did interact with others, her style of interaction was to use short phrases that others had difficulty understanding. Besides verbal communication, several respondents noted that Doris communicated through the use of posture and orientation to others. She was also described as being humorous and helpful.

Doris used short phrases to communicate. When asked how Doris responded to social bids, an assistant teacher, Keith, said, "usually just 'yeah' and 'no', monosyllabic." Five of the interview respondents indicated that Doris needed to improve her communication by talking more.

> "She needs to know things to talk about, how to go about it. ... I don't think she knows how." (Work Supervisor 1, Post-Intervention Interview)

And:

> "Doris would need to learn to be more sharing with people in her own age group." (Parent, Follow-up 1, Interview)

And:

> "She may choose inappropriate ways to communicate because she cannot express opinions." (Workshop Supervisor 3, Post-Intervention 2 Interview)

In addition to not being able to express herself in more than brief phrases, others had trouble understanding what Doris said. All of the interview respondents mentioned in some way that Doris was difficult to understand. They either said that she was difficult to understand; that she had a need to improve volume or articulation; and/or that she had a need to respond positively when asked to repeat herself.

Doris's verbal abilities were limited and respondents described her movement and postures when they described her social skills. For example, Annie, an acquaintance introduced to Doris by project staff, delineated three styles of communication in which Doris would engage by describing her posture.

> Outgoing and friendly: "before you could say 'hello,' she'd say 'hello' and share something that had happened with you, whether it was real or not, but just talkative, almost vivacious; sharing things with you and smiling, giving eye contact, even

> carrying herself in a manner that was more upright and her head up."
>
> Closed: "she would be humped over when she was closed, coat over the head, kind of thing, looking down, not looking at you, humping her shoulders forward."
>
> Belligerent: "When I think of her as belligerent, she'd give you eye contact, but there wasn't any smiling going on, it was more an angry kind of thing and walking away from you, so it wasn't a lot of eye contact there either." (Acquaintance, Post-Intervention 2)

Doris's lack of eye contact was noted in four other interviews. Her third work supervisor described her eye contact as:

> "she has eye contact, but not as extended as most people would in a normal situation. ... She'll look initially, and then she'll look down, and then she'll look up every once in awhile just to make sure, I think, whether the person's there or whether the person's still interacting with her." (Work Supervisor 3, Post-Intervention 2)

Three respondents were asked if Doris's body language were sometimes mismatched with what they perceived her intent to be, particularly the postures described in the preceding section by Annie as "belligerent." All three respondents confirmed the hypothesis that Doris sometimes appeared to be angry and negative when there seemed to be no motivation for the behavior.

Doris participated in positive interactions. She was described as "friendly," "polite," "helpful," and "enjoying people." Her sense of humor was noted by her mother, by an assistant teacher, and by Annie.

> Mother: "Likes to be a clown, that's what she likes to be. Likes to do things that make you laugh at her."
>
> Leslie: "Could you give me an example of what you mean "be like a clown?"
>
> Mother: "She just gets up on the table and calls herself dancing, you know, dancing around on the table, she does that, ..." (Parent, Follow-up 1)

Observational data. The observational data, as the interview data, indicated that Doris's responses were brief. She would often use one or two words to express herself. In this example, Doris was riding in the car with the author.

> "Doris wanted to play a tape. Doris initiated a conversation about tapes. She said, 'Tapes?' and pointed to the tape player in the car. I said that I forgot to bring tapes. She said 'Where?' I said that I did not have any. She looked in the back

> seat. I said again that I forgot to bring tapes. She pointed to the glove compartment and said, 'There?' I said 'no tapes' and opened the glove compartment to show her. She then gestured changing stations on the radio and said 'Can I?' (Author, Fieldnotes, Follow-up 1, 11th month)

In the next example, Doris used longer phrases and sometimes full sentences. She had met two research staff after work at a delicatessen. Doris decided she would like to get a job at the Deli.

> Doris: "I want to cook."
>
> Laura: "Oh, cook. I think they make sandwiches here."
>
> Doris: "Cook. Sausage. Cheese." [said something else, inaudible]
>
> Laura: "Sausage, cheese, and what?"
>
> Doris: "Work here." (points to table)
>
> Laura: "You need to make a good sausage and cheese to work here. My favorite sandwich is cheese and mustard. Could you make that?"
>
> Doris: "Yeah. I'd wash tables, cook."
>
> Laura: "hum."
>
> Doris: "Cook. Get money." (IGO, Intervention 2)

Sometimes Doris would resort to listing items in her interactions. In this example, when Dave, her teacher, asks her about lunch, Doris started listing fruits.

> "While we were waiting, Dave sat down with a carton of milk and asked Doris if she got enough to eat. ... Doris said she was still hungry. She said she did not have a sandwich, but had meat and cheese. Then she started listing fruit. 'Orange, banana, apple.' Dave said, 'Yeah, maybe its a good idea to bring an apple or orange in your lunch,' Then Doris started listing foods like: 'chicken, bread, ..' Dave told her about going to the cafeteria for dinner." (Author, Fieldnotes, Intervention 1)

Both fieldnotes and structured observations contained examples of interaction partners not being able to understand what Doris had said. The first example is taken from a reaction to an IGO observation. The author had completed an IGO during which Doris told Nelda about a party she was going to attend.

> "I tried to translate at one point. Nelda asked Doris what kind of party. I thought Doris said 'ghetti.' Nelda looked to me as if she did not understand. I said 'spaghetti.' Doris said 'No.' When I asked Doris what she had said, she didn't respond. (Author, Fieldnotes, Follow-up 1, Twelth month)

The next example of misunderstandings is taken from an interaction between a high school student who has gone out with Doris for a soda. Doris was on a token system at the workshop. Workers traded in tokens at the "store" on Fridays. This could explain Doris's reference to shopping in a conversation about work. The reference to church is unclear, but came up in several conversations with Doris.

Thom: [says something about work]

Doris: "Church. Money."

Thom: "You work hard for money? What kind of work?"

Doris: "Shopping."

Thom: "You shop?"

Doris: "No."

Thom: "You go shopping, don't you?"

Doris: "Yes."

Thom: "What else?"

Doris: [inaudible]

Thom: "You cut hair?" [observer note: I think he was guessing.]

Doris: "No. Stop. My throat hurts."

Observational data also corroborated Doris's use of gesture and movement to communicate. Analysis of Doris's IGO data indicated the 65% (300 of 464) of the social bids that involved giving information were one or two word phrases. A gesture or motor response was either the only bid or was paired with a verbal response for 25% (208 of 813) of Doris's total social bids. Doris would sometimes focus her gaze on what she wanted. One assistant teacher kept candy in the classroom, which she would get out after most of the students had left. In the afternoons when Doris wanted candy, she would not ask for it. Rather she would get Kim's attention and then look at the candy.

Doris used her body for communication in both positive and negative ways. On one occasion, when she was out with the author, Doris acted out a story she had seen on television.

> "I asked Doris if the movie she had been watching on television was good. She said 'no,' then paused and said, 'yes.' She pointed to her brow over one eye and said a man got shot and he died. I said, 'oh.' Doris said 'Look, I'm the man.' She pointed to a tree and said, 'That's him.' She got up and made a gun by putting her hand together with index fingers pointing out. She said 'bang, bang,' and shot the tree. Then she sat down said 'Got shot here,' pointing to her brow, 'killed.' I said 'You like those kind of movies, huh?' Doris did not answer. I waited and then said that I did not like movies with shooting very much. Doris did not say anything again. (Author, Fieldnotes, Follow-up 1, eleventh month)

Doris also seemed to use her posture to indicate when she did not wish to participate in an interaction and when she did not approve of others' activities. An assistant teacher reported seeing Doris over the summer vacation.

> Jeff [assistant teacher] said he had a friend that lived in the trailer park near Doris. Jeff had gone to visit his friend and seen Doris. The went over to say 'hello.' Doris said 'oh, no,' rolled her eyes, and walked away. (Author, Fieldnotes, Follow-up 1, twelth month)

Doris often rolled her eyes and looked away when greeted by project staff.

In the next example Doris had been shopping for a magazine with Annie, an acquaintance. Every time Annie tried to interact with Doris, Doris ignored her and walked away. In this incident, Doris started an interaction by pushing what Annie was looking at out of the way and ended the interaction by walking away again.

> Doris: "Bingo! Right here!" (picks up book and brings it to Annie.)
>
> Annie: "Yes, that's a big book."
>
> (Doris put the book where Annie was looking and shoved Annie's book out of the way.)
>
> Annie: "Would you like to look at this one?"
>
> Doris: "Look. Hold it."
>
> Annie: "You want me to help you hold it?"
>
> (Doris looks at the book briefly, 2 seconds, takes the book and walks away.)

Instances of mismatched communication were also supported by the observational data. In the following example, Doris indicated to that she is not interested in attending a dance when asked by the author, but showed interest in the event to her substitute teacher.

> "They gave out flyers about a dinner and dance through Parks and Recreation for teens and young adults. I asked Doris if she would be interested in going if I gave her a ride. She got really mad, kept her head down and shouted 'No.' She said she didn't like to dance and she didn't want to go. I read her the flyer. She grabbed it from me and put it on Dave's desk. Then a few minutes later, she picked it up and said to Emily [substitute teacher] 'Hey, what's that?' in a really positive way. She sounded kind of like she might want to go. I offered her a ride again. I don't know if she really wants to or not." (Author, Fieldnotes, Intervention, eighth month)

Doris also showed her sense of humor during some observations. She was observed dancing and singing at the workshop during lunch. This activity made her co-workers laugh and was described as something that her mother said indicated Doris's sense of humor. She sometimes joked about men she found attractive in magazines. She also "teased" one of the instructors for the social skills project by making a game of taking materials during training.

> "I [instructor] got her cup and asked her to come with me to get ice. She playfully snatched the cup, smiled, and said in a sing-song voice, 'I got it. I got it.' She took the cup and she filled it with ice from the ice tray." (Research Assistant 1, Fieldnotes, Intervention 1, eighth month)

Moodiness

Interview data. Doris was described as being moody by both work supervisors, by her mother, and by Annie.

> "Sometimes Doris will work with you and then again, just like I said, she's got this stubbornness about her and if she ever gets in a mood of that stubbornness, you may as well forget it till she gets it out of herself." (Parent, Post-Intervention 2)

And:

> "You know what she does? She's very inconsistent. She can be really happy and do a good job for a couple of weeks, and she'll be on time. Then she'll have a bad week." (Work supervisor 2, Post-Intervention 1)

Observational data. The preceding examples about Doris's choice to participate in interactions and descriptions of her body language provide indications of moodiness. Whether or not she appeared to wish to interact was inconsistent. Also, respondents provided detailed descriptions about the postures they associated with Doris's moods. Observations included notes about Doris's mood on 51 dates. On 24 occasions, it was noted that her mood was positive, on 21 occasions, it was described as negative and on 6 observations mood swings were noted during an interaction.

Consistent explanations or predictions about Doris's mood could not be made. About half the time she was happy to see instructors and project staff and willing to participate. Other times she would seem to be disgusted with the research staff members and would put her head on the table for entire conversations. On one occasion Doris's mother told us that Doris had gotten up early to get ready to go out with the staff to McDonald's. However, when the author and a research assistant arrived, Doris hardly spoke to them and kept her head down on the table. Upon leaving, the author asked Doris if wanted to go out again and Doris said that she did want to continue to participate in observations.

Some examples from the field data indicated the lack of predictability or understanding of Doris moods. The first two examples are taken from instructor notes about training.

> "She [Doris] seemed surprised to see me, but said she'd work. We joked about needing to get organized

> ... She asked to see the second set of pictures. She used pointing and said, "Those pictures" to get her point across. ... Once we started, she put her hands over her face and mumbled. She may have been affected because Keith was involved taking reliability." (Research Assistant 1, Fieldnotes, Baseline, fifth month)

And:

> "... Doris had been particularly cheerful. She was willing to work, she walked quickly to the office to get her ice. She cooperated with all the tasks. But yesterday was not as great. She did a lot of 'I don't know,' especially in the maintenance phase. Then she refused to do the conversation. Maybe because she was upset that Thom did not come or maybe because she had to move. The plug by the table was broken, and she did not want to move to where a plug worked. (Author, Fieldnotes, Intervention 1, sixth month)

In this example from the follow-up phase, the observer commented on Doris's mood and Doris's mother implied it was a change.

> "Doris was smiling. I said that it was nice to see her in such a good mood. Her mother said 'This makes

> two days in a row!' Doris's mother seem excited about that." (Author, Fieldnotes, Follow-up, twelth month)

Her mood also varied during the second intervention.

> "Doris was excited today. There had been a fire at the workshop. She described it over and over again." (Author, Follow-up, twelth month)

And,

> "Doris came out to the car by herself today. She didn't seem to be in a good mood (not as smiley) and she said her feet hurt." (Author, Intervention 2, sixteenth month)

Fantasies

Interview data. Doris sometimes spoke to imaginary friends and told stories that were not true. This characteristic was noted by her first teacher, by one assistant teacher, and confirmed by her work supervisor.

> "Then there will be times when her spirits will go way up and she seems to have imaginary friends that she will talk to. ... I've noticed many times she comes up with imaginary boyfriends. Sometimes real life boyfriends ... She'll pick out somebody for that day and say 'That's my boyfriend.'" (Teaching Assistant 1, Post-intervention)

When asked about whether or not Doris would be described as having fantasies, her work supervisor responded:

> "I feel there are examples, but to me it seems as if she does have a lot of fantasies. I think that might have been one of the reasons that she was trying to take work pieces home with her is to create some sort of work fantasy." (Work Supervisor 3, Post-intervention 2)

Observational data. Due to Doris's limited conversational abilities and her lack of understanding about time, it is difficult to determine whether some of Doris's fantasies may have been miscommunication or Doris's expression of things she wanted to happen. For example, during the seventh and eighth month, Doris told a story about a man who had stabbed someone repeatedly. The story contained some variations in different telling. Sometimes the "stabber" was a man and sometimes a monster. Sometimes the story was a movie, sometimes a dream, and sometimes real. Whenever she told the story, she would gesture by taking one hand and folding it over each finger on the other hand and drawing it up as if to indicate that the fingernails were growing. Finally, one day a conversation partner recognized that the story was about "Freddie" from the "Nightmare on Elm Street" movies. These were movies about a man who is like a monster, who appears in dreams, and who became real. In one instance, when Doris had been trying to describe how the monster was real, Doris had been corrected by her partner for making up a story.

Two other examples also illustrate the difficulty of determining whether Doris's conversation was fantastic. Near the end of the school year, Doris was waiting on the bus at school. Doris said she was going to lay out in the sun that afternoon and went to the closet and got a bathing suit that she put with her things. Dave told her that the suit was not hers and made her put it back in the closet, which Doris did. The next week an assistant teacher that had been at school the year before said that the suit belonged to Doris and that she'd left it at school for over a year. The suit did turn out to be Doris's, but Dave believed that she had made it up (Author, fieldnotes, Intervention 1, eighth month). Also, Doris frequently talked about having pizza parties on Friday. On most occasions these parties did not occur, but a few times her mother confirmed that Doris had been to a party with her niece, Pamela. These exceptions made it difficult to determine if Doris meant that she was going to a party, wished she had been to a party, or was describing the party that she had been to before.

> "On the way out to the car, Doris told me she was going to a party on Friday. I said that would be fun and asked where. She said it was her birthday. I asked where again and she told me it was her birthday

> again. ... Doris initiated two more interactions about the party. She would point to herself when she talked about party or birthday. 'Party.' ' I'm going to have party. Birthday.' 'My birthday. Friday.' This is how she initiated the topic."
>
> (Author, Fieldnotes, Follow-up 1, twelth month)

Doris's limited expression made it difficult to determine if she really believed she would have a birthday party four months before her actual birthday.

Despite this difficulty in interpretation, there were some data which indicated that Doris did have fantasies. She was observed once talking to an imaginary friend. She described a costume that she was going to wear for Halloween. Her mother later confirmed that Doris did not dress for Halloween. She had a note one day on which she had written her address repeatedly, and when she read the note aloud, it included the words, "Happy Birthday, Love, Mike." There were also several other occasions in which she described parties that were not actually scheduled events.

Behaviors Described as Negative

Interview data. Some of Doris's characteristics were considered negative traits or problems by the interview respondents. Doris was described as having behaviors that were "attention seeking" or "stubborn" or "to get her own way" or "to control." For example, Doris sometimes left work sites. This behavior finally caused her to lose a job in a hotel laundry room. Her teacher described Doris's behaviors:

> "Doris often does something wrong to get attention. For example, there is this vocational aide who Doris seems to like and every time he comes to the classroom, Doris runs out into the hall so that the vocational aide has to go after her. She frequently avoids work until begged to do so. She needs people to tell her they will be 'proud of her' when she goes back to work." (Teacher 1, Pre-intervention interview)

Doris was described as negative or frustrated.

> " ... you know what a time we had at the [Chain Hotel] with her. She would lock herself in the bathroom or she would go out in the lobby. She was supposed to be working. I don't know whether ... she said she just didn't like some ... she said I don't like the laundry down there so ... I think it was a girl worked in there, a woman working in the laundry that didn't take the time to show Doris what she supposed to do. I think Doris was aggravated with that."(Parent, Follow-up)

Others noted that her behavior with males was sometimes inappropriate.

> "... it seemed like she was more focused on looking at males, maybe at [Fast Food Restaurant], I guess that's where it was, than wanting to talk with the people that were at her table. Like wanting to watch what other people were doing, and they were usually males, if you looked where she was looking, she was usually looking at male subjects, which is normal. I think that's a normal kind of behavior, but I'm not saying that's a weird thing for her to be doing, but I think that if you're with ... it would get to a point, if that's the behavior that always went on, the people that she was with, would stop including her in their conversation ..." (Acquaintance, Post-intervention 2 Interview)

Doris also would pretend to be sick, get up and leave tables in restaurants, bang her head against the wall, walk away from companions when she was shopping, steal, and hit. All but one of the interview respondents except one noted these types of inappropriate behaviors.

One respondent who knew Doris in a work setting for three months had a contrasting view. She stated:

> "If she gets angry, she keeps it to herself. She can be stubborn, but if she's feeling bad, she never takes it out on others." (Work-supervisor 2's assistant, Post-intervention 1)

Observational data. Fieldnotes and IGO data supported the interview data. Doris exhibited the behaviors that interview respondents described as negative. Observers reported seeing Doris: (a) run away on nine occasions; (b) be angry to the extent that she hit, yelled at others, criticized others, walked away as other's were speaking to her, or used profanities on 12 occasions; (c) stealing or attempting to steal on four occasions; (d) faking being sick on three occasions; (e) either leaving in the midst of an activity (e.g., moving to a different table in the middle of a meal) or refusing to leave at the end of an activity (e.g., not getting out of the car at home) on six occasions; (f) sitting on the ground in stores or hallways on eight occasions; and (g) flirting inappropriately (e.g., with strangers or with teachers) on four occasions. In addition to these behaviors, Doris often complained of illness (i.e., headaches, sore throat, backaches), would pretend to cry, would ignore her conversation partners, and would keep her head down during interactions. The observational data confirmed that Doris exhibited some behaviors that caused others to respond with disapproval.

Below are some examples of Doris's behaviors that were described as negative.

Running away:

The author took Doris and three non-disabled high school students out for a soda at a fast food restaurant across the street from the school.

> "As soon as Doris got out of my car, she ran straight for the road. Thom went after her and got her back. I think she really liked the attention." (Author, Fieldnotes, Intervention 1, sixth month)

Anger:

Nelda, a research assistant, and Doris went shopping to get a birthday present for Wendy. The shopping trip was after Doris had asked to play cards with the staff on a couple of occasions. Doris got angry at Nelda for taking a deck of playing cards from the display.

> "[Nelda walks down the aisle and spots some playing cards. She holds them up and calls to Doris.]
>
> Nelda: "Doris, look, playing cards.
>
> Doris: [negative tone] "Put it back!"
>
> Nelda: "You not interested?"
>
> Doris: [negative tone] "Oh god!" (IGO, Follow-up)

Doris got angry once in a parking deck, when the author could not locate a parking space.

> "Doris got frustrated about not being able to find a place right away. We drove to the top, to the bottom, and then back up. Doris started to point out places where I should park. Some were 'Handicapped'

> spaces and some were not spaces at all. She was grumbling and keeping her head down. She said 's---' a couple of times and used 'f---' once." (Author, Fieldnotes, Follow-up 1, eleventh month)

Flirting:

Doris was on a pedestrian mall outdoors eating an ice cream cone. Three men, who seemed to be intoxicated, were sitting on a group of benches behind where Doris and her companion were sitting. When Doris had walked to the bench earlier, she had been looking at them and fell into a hole. One of the men had helped her up. Later in the day she continued to act as if she could not stand without assistance. She tried to get the men to help her again, while refusing assistance from her companion.

> "She put one leg over the end of the bench so she was spread out. She would occasionally look at her knee. She turned and waved at the man who had helped her and said 'Thank you.' ... when she finished her ice cream, she would try [to get up] and fall back down, once she lay all the way down on the bench looking to the men who had helped her before. I asked if she needed help and she said no, but then she would struggle and not get up. ... I went over to give her some support so she could stand up. She said 'I'll do it myself.' So I let her." (Author, Fieldnotes, Follow-up 1, eleventh month)

Pretending to be sick:

This example was taken from fieldnotes on an observation of Doris at work. She was folding laundry with two co-workers. Her teacher Joyce, was supervising.

> "At first, Doris had a coughing fit. This was clearly a put on. Next, she started making gagging noises and saying 'I'm sick. I'm sick.' When she started making gagging noises, the two co-workers looked disgusted. Joyce threatened her with calling a cab and going back to school early. Doris went back to work and had no more illnesses." (Author, Fieldnotes, Pre-Intervention, second month)

Motivation

Interview data. Respondents to the interviews often speculated on Doris's motivation for her inappropriate behaviors. For example, Doris's leaving the classroom was attributed to wanting the attention of one of the teachers. One respondent attributed Doris's talk about birthday parties to attention seeking.

> "... she's doing it even now, saying she's got a birthday party this Friday. So for about a month and a half she's been saying, 'It's my birthday, it's my birthday, I have a birthday party, I'm going to a birthday party.' I think a lot of that is attention-getting. Not just from me, but from co-workers as

> well. She wants them to take notice of her." (Work-supervisor 3, Post-intervention 2)

Doris's anger was also attributed to frustration with others not being able to understand her. Doris's mother said that she would just walk away when other people asked her "what." Toleration of others asking her to repeat what she had said was listed as a need for Doris by two respondents. In the final session of interviews, not being understood was confirmed as a motivation for Doris's angry behaviors. "She can't express what she feels, wants, or needs." (Work-supervisor, Post-intervention 2)

Another explanation of Doris's inappropriate behaviors and lack of interaction was low self-esteem.

> "I think she needs to develop some self-confidence. I think that's one of her biggest problems, self-esteem. She is very shy." (Teaching Assistant 1, Post-intervention 1)

and ...

> "Maybe she feels like she is fat or she is not clean or she doesn't dress as well as the others. I think she has a poor self-image." (Work-supervisor 1, Post-intervention 1)

Others noted that Doris was aware that others could do things that she could not do and that others had more than she did.

Another explanation of Doris's behavior was that Doris attempted to get what she wanted, or to control others. She just wanted to do things her own way.

> "... Situation where we went to the shoe store and she banged her head on the wall, she was going to make me back down by pretending that she was going to be out of control and I think she's really learned that if she acts like she's about to go out of control, people will back down and give her what she wants." (Acquaintance, Post-intervention 2)

Another explanation that was triangulated or suggested by multiple interview respondents was a lack of consistency in the way Doris inappropriate behaviors had been dealt with in the past.

> "Like, you know, she takes a bath, puts clean pajamas on for bed, all right, Doris expects me to give her a bowl of ice cream ... just because she took a bath ... I think we did wrong when she was little because when she was small, she'd do things like, when she was growing up, we would treat her, like she did something we were proud of, we'd give her a cookie." (Parent, Follow-up)

A final explanation that respondents gave for some of the behaviors that got Doris negative attention was her response to the loss of her father. One teacher, Doris's mother, and an acquaintance noted that Doris had not resolved feelings about her father's death two and a half years before the study began. For example: "I guess as much as I could figure out when she was talking about her father, I'd say there's something left over there that she never resolved." (Acquaintance, Post-intervention 2) Also, assistance with depression was listed as a need to help Doris improve her social interactions.

Observational data. Doris exhibited some of the behaviors described as negative in slightly over half of the recorded observations. Specifically, 19 of the 31 IGOs (61%) included some description of these disapproved behaviors. Determining what motivated Doris to perform these behaviors was difficult. Doris's communicative ability and understanding made it impossible to determine from Doris what was motivating her. During the course of the research, staff questioned whether or not Doris wished to participate in the study activities. Doris actually did withdraw for about 6 weeks during the second instructional phase. However, she decided to participate with after that break.

Doris indicated she wished to participate at other times. She introduced project staff as "friends" to her co-workers and supervisory staff at the workshop. When she behaved in ways that indicated that she did not want to be with the staff (e.g., walking away, ignoring bids, complaining), Doris was offered the option of dropping out and except for one exception, she indicated she wanted to continue.

There was also some indication that some of these negative behaviors may have been bids for attention. In the running away example when Thom had chased Doris to bring her back to the restaurant, Doris was beaming when they returned to the parking lot. She tended to run away more often when males were around, as she did at the pedestrian mall and at the dance she attended.

On another occasion, Doris seemed to use negative behaviors to attract attention at the Workshop during lunchtime. Doris made a few bids to Ricky and was ignored. She began to walk around the lunchroom while others were eating.

> "[Doris goes back to her chair across from Chris. Chris is talking with another client about food. Ricky is speaking with someone else. Doris is looking towards Ricky, but Ricky is not attending to Doris. She holds her hand out and points to her fingers]
>
> Doris: 'Chips. Banana.'
>
> [Ricky does not respond.]
>
> Doris: 'Good?'
>
> Ricky: [responded, but not audible to observer]
>
> Doris: 'What?'
>
> Ricky: [responds, but not audible to observer]

Doris: 'Huh?'

Ricky: (laughs)

Doris: (laughs back) 'What's funny?'

Ricky: (ignores her)

[After a another attempt to continue an interaction stopped. Doris started dancing in the middle of the room.]

Doris: (starts moving her body like dancing and sort of sing/chants) 'Bah. Bah. Bah.'

George: 'Bah. Bah. Bah.' (he laughs)

Chris: 'Doris. Stop being so freaky.'

Doris: [says something to Ricky. Not audible to observer]

Ricky: (laughs) (IGO, Intervention 1, 9th month)

Doris spends the rest of the observation near Ricky saying "what?" "what's funny?", laughing, and saying "shut up" when Ricky laughs. She tried to interact with others in the lunchroom, but was ignored until she began dancing, singing, and walking around during lunch.

The structured observations indicated that at times Doris did not get attention from appropriate bids. Conversation partners did not respond to at least one of Doris's social bids in 20 (63%) of the IGOs. A total of 43 (6%) of Doris's bids were ignored in the IGOs. This lack of response may indicate Doris would need to use the behaviors described as negative in order to get attention.

Observations also included examples of Doris's frustration when others did not understand her. Once after the school day, Thom came by the classroom to visit.

> "Doris and Thom spent most of the time drawing. She wanted him to draw her, sign his name, and write Chris's, his and Matt's names. She wanted 'Donna and Matt's written, too. She became a bit frustrated because Todd didn't always understand what she wanted. Often she pushed his shoulder or smacked his hand and said 'C'mon' or 'Just do it.'" (Research Assistant 1, Fieldnotes, Intervention 1, sixth month)

Another example occurred during an IGO, when Nelda and Doris were looking for tapes at a store. When Nelda did not understand what Doris wanted, Doris stopped talking to her and walked away.

> "[Doris pulls out a tape by Bobby McFarrin.]
> Doris: 'Be happy.'
> Nelda: 'What's that?'
> Doris: 'Be happy.'
> Nelda: 'Is that the name of a song?'
> Doris: (says nothing)
> Nelda: 'Who does that song, Doris?'
> Doris: (ignores her and walks away)
> [Nelda pulls out a tape and looks at it.] (IGO, Intervention 2, sixteenth month)

On a few occasions, however, Doris persisted in getting others to understand her. She would resort to acting stories out as she did when she was describing a movie she had seen to the author. Her pantomime was described in the section on "style of communication." In another IGO when Doris and Nelda are looking at a magazine, Nelda misunderstood Doris 11 times. Once Doris got angry and shouted "No," but on the other 10 times, Doris explained what she meant.

"Doris: (turns to picture of a girl on the beach, laying in the sun.) 'Sun. Burn. Hot.'

Nelda: 'Do you think she's getting a tan?'

Doris: 'Burn. Hot.'

Nelda: 'Yeah. It does hurt to get a sun burn.'

[Doris turns the page to a picture of a camel at a water fountain.]

Doris: 'Turn it.'

Nelda: 'Camel?'

Doris: 'Uh-uh' [No]. 'Turn it, drink water.' [Points to picture of water fountain handle]

Nelda: 'Oh, uh-huh' [yes] 'He turns this to make the water come out.' (IGO, intervention 2)

Although Doris did get frustrated when others did not understand her and she was difficult to understand, she also demonstrated the ability to persist in explanations.

Interview respondents indicated that Doris's low self-esteem was another reason for exhibiting behaviors that were described as negative. There were some indications of low self-esteem in the observations. In one field observation, Doris's mood had changed from good to sullen. When her companion asked what had happened, Doris reported that she had seen a friend who had not spoken. The observer was certain the friend had not seen Doris, but Doris became upset that he did not like her. On another occasion, when Doris was out with two research staff, she reported that her brother did not love her.

> "Doris said she hated Richard near the end of the conversation and cried. She'd list her family members who loved her and then would say 'Richard doesn't love me.' She said she was scared. I tried to do effective listening after I'd figured out what she was talking about." (Author, Fieldnotes, Intervention 2, eighteenth month)

Doris sometimes seemed to feel her friends and family did not care about her.

Observational data also indicated Doris may have attempted using behaviors described as negative to control situations. After Doris behavior going to the shopping mall (i.e., running away, hitting, cursing, trying to take merchandise and sitting on the floor), it was decided not to take her there for further observations.

After that decision was made, Doris sometimes would have tantrums when project staff were taking her to other settings, and would demand to go to the mall. Doris rarely got to go shopping and buy things for herself and usually when she asked, she was turned down. She may have resorted to behaviors that were described as negative to express her needs and wants.

The determination of whether or not past treatment was a motivating factor for behaviors described as negative is difficult to conclude from observations. However, there was a series of events that indicated pretending to cry may have been motivated by past treatment. On one day at the workshop when Doris had not been expecting project staff, she said she would wait for her other ride. When someone explained there was not other ride, Doris went back into the workshop crying.

> "Now a staff member was patting her and talking to her. When the staff member would move away, Doris would start crying again and the staff member would come back. Doris eventually got up holding the hand of the staff member. They walked toward the door to the hallway. When they got to the doors in front of Tanya's (workshop supervisor) office, Doris started crying again and turned her head to the wall. ... Next, a man came up and told Doris he'd buy her a drink if she'd go with us. He held up change and

> Doris started laughing and snatched it from him ..." (Author, Fieldnotes, Intervention 2, seventeenth month)

On two other occasions after that, when Doris had gotten in trouble at the workshop, she got near the staff members who had attended to her before and began to cry (with no tears).

Interactions with Doris during observations also supported that she might not be finished grieving for her father's death. One illustration occurred one day when Doris had brought a picture of her father to school.

> "Dave came in and told me to come look. Doris had placed the picture of her father on the floor and was kneeling in prayer to it." (Author, fieldnotes, Intervention 1, seventh month)

She would also say that her father was the reason she did not want to do things. This exchange occurred when staff was explaining the Baseline Phase of the Second Intervention to Doris.

> "I told Doris that she'd do the test for three days and then we would go out to lunch. Doris said, 'I can't.' I asked why. [Doris said] 'Father.' (Author, fieldnotes, fifteenth month)

Doris also talked about her father when driving near the hospital and when driving past cemeteries. She discussed her father with high school peers to the extent that they came to the project staff to ask why Doris brought up her father so much.

To summarize, all of the possible motivations given for Doris's negative behaviors in interviews were supported by the observational data. Doris had difficulty communicating and her appropriate behaviors were sometimes ignored. It may have been that she resorted to the behaviors that were described as negative because they were more likely to get others to respond to her. It is also possible that Doris could have been motivated by low self-esteem or by the anger and misunderstanding she had about her father's death.

Trudy

Trudy lived in a county neighboring the district where she attended school and work. She lived in a trailer with a guardian, Katherine, and Katherine's husband. They often had others living in the trailer for extended periods of time. Trudy had lived with Katherine since Trudy three years old. Katherine and her husband were employed at a small truckstop motel and restaurant. When Katherine had an afternoon shift, Trudy would spend her afternoons and evenings helping out at the motel.

During the Pre-intervention Phase of the study, Trudy was receiving a half day of vocational training and a half day of instruction in domestic, leisure, and recreational domains. Trudy was spending the full school day in on-the-job training during the Baseline and Intervention Phases. The training site was a part of a franchise motel chain. Trudy's instructional tasks included: (a) locating the "check-out" rooms from a list; (b) entering the room and removing all of the towels and sheets; (c) taking laundry to the laundry room; (d) washing and drying sheets and towels; (e) folding linens; and (f) assorted housekeeping tasks such as sweeping the laundry room and vacuuming the elevators. Trudy had the same two teachers as Doris during the school year, Joyce and Dave. While Joyce was the classroom teacher, a substitute teacher, Emily, completed most of the job training at the Franchise Motel. Dave took over training when he was hired to replace Joyce. Joyce continued involvement in Trudy's program as vocational training coordinator for the school district.

The hotel manager, Brandon, hired Trudy as a full-time employee upon her graduation from the high school program. As an employee of the Franchise Motel, Trudy's job tasks were concentrated in the laundry room. She was responsible for washing, drying, and folding linens. Occasionally she worked together with another housekeeping staff member in the motel rooms. The Franchise Motel continued to be a training site for the school district. A third teacher, Bob, and three students were completing job training there in the mornings.

A total of 10 interviews about Trudy's interactions were completed across three phases of the study. During the Preliminary Phase two interviews were conducted, one with Katherine, Trudy's guardian, and one with Joyce, her teacher. Trudy was new at the Franchise Motel and her supervisor and co-workers did not feel they knew her well enough to complete the interviews. Following the Intervention Phase of the study, four interviews were conducted. Katherine, Joyce (in vocational coordinator role), Brandon (her work supervisor), and Dave (the second teacher) completed interviews. A set of follow-up interviews were conducted between the fifteenth and seventeenth months of the study or six to eight months following Trudy's graduation. Katherine and Brandon completed third interviews and two new respondents completed interviews, a co-worker (Barbara) and a graduate student who had been introduced to Trudy during outings arranged for the collection of generalization data (Annie).

Observational data were collected in work and leisure environments. Structured observations were conducted at work and at Fast Food restaurants throughout the study. Work observations were conducted during break and lunch times in the lobby, the laundry room, and the breakroom. Two different fast food sites were used: (a) Bubbles, a combination laundromat and deli, during Baseline, Intervention, and Follow-up 1; and (b) a hamburger chain during Follow-up 1 and 2. Additional observations were made at these sites: (a) a school picnic during Intervention; and (b) the Connoisseur Coffee Swap, a full service restaurant, during the follow-up phases. As with Doris, there were few opportunities to observe Trudy outside of the work environment, so the trips to Hamburger Fast Food and Connoisseur Coffee Swap were arranged by the author and research assistants. Trips to Bubbles occurred as a part of the school program. The author and assistants also arranged trips to Bubbles during the Follow-up Phase of the study. Fieldnotes or log entries were completed on 110 occasions following instructional or social interactions with Trudy.

Seven descriptor categories were selected based on recurrence across interview respondents and support in observational data. The descriptor categories for Trudy included: (a) type of interaction (i.e., appropriate, predictable, interactive); (b) likeable; (c) friendly; (d) persistent; (e) aware of others; (f) orientation to conversation partner; (g) fluctuating behaviors (i.e., brief interactions; stereotypic behaviors; response to change). Each category will be discussed with examples from interview data, followed by a discussion of supporting and conflicting observational data. The triangulation of descriptor categories across interview respondents is illustrated in Table 4.2.

Type of Interaction

Interview data. Trudy's interactions were described as being: (a) appropriate; (b) interactive; and (c) predictable. Five of the six respondents commented on the acceptability of Trudy's social interaction. The term "appropriate" was used to include: "good verbal skills;" "no problems," "socially, she has a good foundation to build on." Her teacher, Joyce, described Trudy as responding "pretty appropriately" (Post-intervention). Her co-worker in the follow-up interviews said, "You mean social things? She [Trudy] does great." Her employer, Brandon, acknowledged that Trudy was not consistently appropriate:

> "... sometimes she will hold conversations. I'm not sure this is a normal conversation at all times. She does not keep it going continuously. When she is spoken to, she will respond and most of the time she will come back with another reply after that. She will say things she thinks are funny and so does everybody else so everybody gets a big laugh." (Work supervisor, Post-intervention)

The type of interactions that Trudy participated in were also predictable. Four of the interview respondents initiated describing Trudy's predictable interaction

Table 4.2

Triangulation of Trudy's Descriptor Categories Across Interview Respondents

Descriptor	G	WS	T1	T2	CW	ACQ
Type of Interaction						
Interactive	X	X	X		X	X
Appropriate	X	X	X		X	X
Predictable	X		X	X		X
Likeable	X	X	X	X	X	X
Friendly	X	X		X	X	X
Persistant	X	X		X		X
Awareness of others	X		X		X	X
Eye contact		X	X			
Fluctuating problems						
Length of interaction		X	X	X		
Resistance to change				X	X	X
Interrupts				X		
Irrelevant responses		X				X

G = Guardian. WS = Work Supervisor. T1 = First teacher. T2 = Second teacher. CW = Co-worker. ACQ - Acquaintance.

routines and the remaining two respondents confirmed that Trudy did followed specific patterns of interaction. The types of predictable routines that Trudy followed included: (a) reciting her daily work schedule; (b) initiating conversations with "What's your name?" (c) using a set of initiations (e.g., always "Hi, how are you?"); (d) saying that it was "2:00;" (e) repeating everything Brandon had said at work; and (f) asking if your hands were cold. For example:

> "She typically has a set of social initiations that she uses frequently, such as greetings like 'Hi, how are you doing?,' stuff about the weather. And when asked about how her day's going, she often recites her schedule that doesn't change much from day to day. That's usually what she does when she interacts with you, unless its something specific." (Teacher 2, Post-intervention)
>
> "... she'd perseverate sometimes, but if you could get her off of what her schedule was for the day and get her to tell you information about herself that was ... that was interesting information." (Acquaintance, Follow-up 2)
>
> "She talks about cold hands. She's always asking people if they got cold hands. Everybody that comes in the door, she asks if its cold outside." (Neighbor present during Guardian Interview, Post-intervention)

Additionally, both Trudy's neighbor, present at the guardian interview, and her second teacher noted that Trudy needed to learn different ways to start conversations and different topics of conversation in order to improve her social interactions.

Trudy was interactive in social environments; she both responded to and initiated social bids. Again five of the six respondents noted this quality about Trudy's social interactions.

> "She also initiates and interacts with staff, but this is also around functional activities." (Teacher 1, Preliminary)
>
> "When people ask her things, she sits down and tells people things." (Guardian, Preliminary)
>
> "... her ability to talk about not a wide variety of things, but a variety of things and to go ahead and make ... she doesn't continually initiate hello ... after hello she knows to go on so she has some of the skills down while like when the employees have come into the work room there were there would be an interaction there that was more than just 'Hi.' They would say what are you doing, what's going on, what did you do last night and she could respond to those well ..." (Acquaintance, Follow-up)

Trudy demonstrated appropriate interactive social responses. These social routines were predictable and often were centered around work, weather, her daily routines, or greetings. Generally, interview respondents described Trudy's interactions positively.

Observational data. The observational data supported the above descriptions of Trudy's interactions. She was sometimes appropriate, predictable, and interactive. There were three log entries where the author reported that appropriate interaction had taken place. For example:

> "Evelyn [a housekeeper at the Franchise Motel] came through [the laundry room] during break and Trudy initiate an extended greeting.
>
> T: 'Hello.'
>
> E: 'Hello.'
>
> T: 'How are you doing?'
>
> E: 'Okay.'
>
> T: 'I'm fine.'" (Author, Fieldnotes, seventh month)

Within the second month of the study, the author made a note regarding doubt about whether or not Trudy was appropriate for the study because she may not have needed any instruction.

Analysis of the IGO data indicated that 21 (80%) contained some interactions that would be considered appropriate. When looking at the coding for each individual bid, 339 (47%) were coded as "appropriate" (i.e., with appropriate eye contact, orientation, and volume, making sense in the context of the environment, and unaccompanied by any stereotypic movements) (Interobserver K = .24, .38; r = .98).

The observational data also indicated that Trudy's social behaviors were interactive, she both initiated and responded to others' social bids. There were three log entries where the author or the research assistant indicated that Trudy had initiated a social interaction. There were seven entries that described a conversation that Trudy had extended by responding to conversation partners. For example:

> "She started talking about jewelry. She said that she remembered that I used to wear a ring. She said that she liked rings and things ... she said she wanted a high school ring. She called Dave over to find out about getting a ring.
>
> [Later] She talked to me about going to the doctor. She knew the doctor's name and that he was in [town], not [another town]. I asked why she was going and she said that the doctor was going to look at her body. I said, 'Yeah, he's just going to give you a check up?' Trudy told me Dave had asked her about this earlier. Trudy said she was going in the morning. When I asked if she would go to work tomorrow, she said she would go after work. I said

so you'll go in the afternoon. She repeated 'in the afternoon.'"[Author, Fieldnotes, eighth month]

The interaction went on and included topics of getting a soda for break and when graduation would be. One log entry, also from the eighth month, recorded that Trudy had spent an entire break session with no interaction with a co-worker who was sitting next to her.

The IGO data also indicated that Trudy participated in interactive social exchanges. Trudy was engaged in interaction for an average of 48% of the time she was observed. Time engaged in interaction ranged from .20 to 8.93 minutes. She was observed to initiate 114 initiation cycles (median 4 per observation) and participated in 220. Additionally, she initiated 69 (50%) of the topic changes. Trudy averaged 6.4 bids per interaction cycle. These figures indicate that Trudy could initiate interactions and topics of conversation, maintain them over time, and respond in social bid turn-taking.

Observational data also supported that many of Trudy's social initiations were predictable. Repetitions of her daily schedule were recorded in three log entries and in nine IGOs. In one example, Trudy appeared to be talking to herself, "get my sheets and pillowcases, and everything else that Brandon said" (IGO, follow-up 1). In a second example, Trudy and Annie went to the Connoisseur Coffee Swap after work.

Trudy: 'I watch tv at home.'
Annie: 'When?'
Trudy: 'This morning, I did.'
Annie: 'This morning?'
Trudy: 'I got up early this morning.'
Annie: 'um-hum.'
Trudy: 'Got up early and was eating breakfast. I fold sheets for two hours.'" (IGO, Follow-up 1)

Additionally, supporting interview data about repetitions, Trudy greeted the author once with "Hello, what is your name?" in the eighth month of the study.

Additionally, Trudy used the same initiations predictably. In the following example, she used "Hi, how are you?" as reported in the interviews. Trudy was having lunch in the breakroom at the Franchise Motel with Wendy and three other housekeeping staff members. All of them had been at the table eating for some time and had spoken to each other before this excerpt.

"Trudy: 'Hi. Sharon.'
Sharon: 'Hi, darling.'
Trudy: 'How are you?'
Sharon: 'Fine, honey.'
Trudy: 'Hi, Barbara.'
Barbara: 'Hi.'
Trudy: [to Sarah] 'How are you?'

Sarah: 'I'm tired.'

Barbara: [to Sarah] Have you seen Wendy's high school ring?' (IGO, Follow-up 2)

Other common initiations that Trudy employed in our observation were: (a) What are you doing? (7 IGOs); (b) "What" or "What were you talking about?" used when the conversation partner had not said anything to elicit the question (4 IGOs); and (c) a narrative on the ongoing activity (e.g., "I'm taking a break," "Sitting here having a cup of coffee with Gloria.") (8 IGOs). In the following example, Trudy unsuccessfully attempted to initiate interactions twice with a narrative.

"[Wendy leaves. Trudy finishes fixing her coffee and cleaning up a mess of sugar. Joyce and Wendy are in the other office and are talking about breaks.]

Trudy: 'I'm taking a break myself, Joyce. Look, Joyce, I'm taking a break.'

[Joyce does not respond.] [End of cycle.]

[Wendy comes into the lobby and sits down. Trudy sits down, too.]

Trudy: 'We ain't doing nothing but taking a break. That's all we're doing.'

[Wendy does not respond.] (IGO, Baseline)

In this example, Wendy and Hugh had been talking about coffee:

"Trudy: 'We always drink coffee.' [Not talking to anyone and not in conversation group. Dave and Wendy are by washer. They continue talking, taking no notice of Trudy.] 'We drink coffee at the Truck Stop and then we work at the Truck Stop Motel.' [Dave and Wendy continue talking.] 'We drink coffee and work at the Truck Stop Motel. Then we go home and rest our bones.'

Dave: 'When are you going to do that, Trudy?'" (IGO, Intervention)

Trudy's statements about time when it was incorrect was noted in five IGOs. In the next example, Trudy was at Bubbles during a coffee break with Dave, Wendy, and Gloria. Trudy and Dave had discussed how much better coffee is with real cream, how thirsty Dave was because he had chips earlier, playing pool, and work activities prior to this excerpt:

"Trudy: 'Dave, it's almost 2:00.'

Dave: 'No, its nowhere near 2:00 yet. It's just quarter after 11:00.'

Trudy: 'Huh?'

Dave: 'Quarter after eleven.'

Trudy: [Turns to the author] 'Quarter after 11:00.'

Dave: 'Oops. Quarter after 10, I mean.'

Trudy: [looking at the table.] "Quarter after 10. [pauses, looks back to Dave] 'Is it really quarter after 10?'

Dave: 'Yes. What do you think about this rain we have been having?'" (IGO, Intervention)

In a second "time" example, Trudy was having coffee with Nelda, the second research assistant, at the Connoisseur Coffee Swap. Trudy initiated a new cycle:

Trudy: 'You think its 2:00, Nelda?' [Trudy and the author had discussed time earlier.]

Nelda: 'It's 4:30.'

Trudy: 'It's 4:30, Leslie.'

Leslie: 'Just about.'

[End of cycle.] (IGO, Follow-up 2)

The author recorded Trudy's discussion of cold hands in field notes four times, twice on exceptionally hot days. The topic, "cold weather," was also recorded in one IGO.

Other topics that were common selections for Trudy included what she was eating for lunch (six IGOs), drinking coffee (14 IGOs and one log entry), and going out to Bubbles or Coffee Swap (three IGOs and eight practice conversations.) In the following example, Trudy initiated a discussion about food at the motel during lunch:

Trudy: 'What are you eating?'

Linda: 'Chicken.'

[Evelyn enters the lunchroom doorway.]

Trudy: 'She's eating chicken.'
Evelyn: 'Eating chicken for lunch.' (IGO, Follow-up 2)

In this example, Barbara initiated the topic.

Barbara: 'Trudy, What did you have for lunch?'
Trudy: 'Hamburger.'
Barbara: 'What did you have?'
Trudy: 'Hamburger.'
Barbara: 'You had a hamburger today?'
Trudy: 'Hamburger and a cookie.'
Barbara: 'You had a hamburger and a cookie, today?
Trudy: "I told Barbara that I had a hamburger and a cookie today and some cheese.'
Barbara: 'Oh, so you had a cheeseburger today?' (IGO, follow-up 1)

During the follow-up phases, Trudy's co-workers at the Franchise Motel began to initiate about the topics that she used routinely. Housekeepers asked her about having bologna and cheese sandwiches for lunch and about going home and resting her bones after work. On outings for coffee to Bubbles and the Coffee Swap, the author and research assistants were as likely to initiate about coffee as Trudy was. So even though many of Trudy's topics for social interaction were predictable, the behaviors were sometimes modeled for her by her conversation partners.

The above two examples from the topics discussion illustrate another predictable quality about Trudy's interactions. This is the way she appeared to be translating to someone else. She told Evelyn what Linda was having even though Evelyn had been within hearing distance. Trudy then repeated what she had said to Barbara to the author. This quality was also illustrated in the "time" examples. The repetition or translation behavior was noted in a total of six IGOs. In the following example, Wendy was talking to Dave and Trudy repeated what Wendy said. This was followed by a similar interaction with a housekeeper.

Wendy: 'I hope I get a cap and gown next year.'

Trudy: 'Wendy hopes she gets a cap and gown next year.' [To Dave and then to Gloria] 'Cap and gown next year.'

[A housekeeper comes in and checks towels. She walks over to the dryers by Trudy.]

Housekeeper: [to herself] 'They're still drying.'

Trudy: 'They're still washing.' [to Dave.]

Dave: 'Okay.'

[End of interaction cycle.] (IGO, Intervention)

In summary, the observational data indicated that Trudy did participate in appropriate, interactive, predictable social interactions.

Likeable

Interview data. Every interview respondent commented that Trudy was liked by her co-workers and peers. Joyce, Trudy's vocational coordinator, noted that other staff members at the Franchise Motel invited Trudy to join them on their breaks (Post-intervention). Her co-worker said,

> "Everybody likes Trudy here. All the staff like to fool with her and she can carry on conversations. I think she looks for me when she comes in in the mornings. She'll say, 'I'm here to work to make Brandon Collins happy.' She's a bird, that Trudy, one mess" (Co-worker, follow-up).

Trudy's guardian described the way that Trudy was perceived at the Truckstop Motel and Restaurant,

> "Just about everybody here would kill for Trudy. Everybody around here likes Trudy. ... Yeah, she's a likeable child. All the people I work for and everything around her ... over at the restaurant and service station, all of them really think the world of Trudy" (follow-up).

Observational data. Whether or not someone is liked by others is not an observable behavior. However, there were a few occasions when it appeared that Trudy's conversation partners enjoyed her company. Barbara, one of Trudy's co-workers, was telling the author about something that had happened to Trudy at work. Barbara referred to Trudy as "a real nice girl" (Author, Fieldnotes, ninth month). Annie also wrote observation notes after one of her first interactions. Annie ended the summary with "I've had a good time."

Analysis of the IGO data revealed that Trudy's conversation partners were coded as having "positive affect" in seven (26%) of the IGOs. Additionally, some of Trudy's co-workers referred to her with pet names. Sharon in the examples above referred to Trudy as "darling" and "honey." The reference to Trudy in positive terms, the positive interactions, and the use of pet names corroborate the interview data that Trudy was liked by her peers.

Friendly

Interview data. One of the reasons that Trudy may have been liked so much by her peers at home and at work was because she was perceived as a friendly and cheerful person. Five out of the interview respondents remarked on an aspect of Trudy's friendliness. She was described as "friendly," "likes people," "upbeat," "cheerful," "outgoing," and "cordial." Carolyn, a resident of the Truckstop Motel, described Trudy as:

> "... real friendly ... I remember last summer, she'd ask me every time she saw me, 'What's your name?' Every single day. Finally, I started saying 'You

> know my name. You know I'm Carolyn.' (Neighbor; Post-intervention)

Dave, the second teacher, responded to the question regarding student strengths in this way:

> "... she likes being around people. She frequently will seek out and talk to people. I think that's a real strength. ... when she does talk to the maids, they enjoy talking to her. She really enjoys talking to them." (Teacher 2, Post-intervention).

In the last example, her work supervisor described Trudy as:

> "Actually, she's very outgoing. I mean, I guess that's the word. Most anytime, she'll come up and say 'hi,' most of the time she's the one that starts the conversation ..." (Work Supervisor, Follow-up).

Observational data. Twelve log entries recorded Trudy behaving in cheerful and friendly ways. For example, when a research assistant went to the high school for a baseline trial, she reported:

> "Trudy had a super day at work and was so happy and talkative. 'Jogged' up to me and said, 'Hello.' Went around to others in room and had lots to say." (Assistant 1, Fieldnotes, Baseline, Fifth month)

Later, when the author and an assistant were at the Franchise Motel for an instructional session with Wendy:

> "Trudy came into the breakroom today and said 'Hi.' I said 'Hi,' back to her. She said 'How you doing?' I said, 'Fine how are you?' She greeted Nelda before that." (Author, Log, Follow-up 1, Thirteenth month)

Annie reported that she had seen Trudy greet all of the staff at the hotel when they had returned from lunch (Author, Log, Follow-up 1, Fourteenth month). Additionally, Trudy was noted greeting others in six IGOs. These behaviors, in addition to the favorable ways others described Trudy and her appropriate and interactive social bids, indicated that Trudy was friendly.

Persistent

Interview data. Trudy was persistent in initiating interactions, in continuing interactions, and in maintaining the subject. Four of the respondents noted this characteristic in seven of the 10 interviews. Her guardian described Trudy's persistence in this way, " She's always telling us to go to work. The only time she leaves us alone is if I give her a cup of coffee and she sits down" (Guardian, Post-intervention). Dave explained how this persistence in interaction was sometimes a problem:

> "... when Brandon was on the phone, she'd go ahead and talk to him if she had something she wanted to say to him. The urge is stronger than not saying anything. Because, as I said, she does enjoy

> interacting with people, and it may not sometimes matter what kind of interaction it is; whether the other person is pleased or annoyed that she's talking to them." (Teacher 2, Post-intervention)

Brandon remarked that Trudy persisted in conversational topics when asked what Trudy's needs were in social interactions.

> "The main thing, I guess, is that Trudy wants to stay on the same subject at all times. ... The same thing over and over; she doesn't actually change the conversation." (Work supervisor, Post-intervention)

Observational data. Persistent behavior was recorded in 16 log entries. In this example, Trudy persisted in talking about her jobs at work even though no one was responding to her.

> "Trudy came in with much enthusiasm about work. She stood at door and listed her jobs for the day. No one was particularly listening. She willingly came over to work with me and listed the jobs to me (again). She also explained that she'd worked her butt off.' (Research Assistant 1, Fieldnotes, Baseline, Fifth month)

In the next example, Annie reported that Trudy had persisted in greeting co-workers when she was ignored.

> "When she [Trudy] went in and said 'hello' to each of them [co-workers], they didn't respond. And then she

> said, "J___, it's cold outside. It's cold outside.' and no one responded to her, they just kept talking." (Author, Fieldnotes, Follow-up 1, Fourteenth month)

Another way in which Trudy exhibited persistent behavior was in maintaining the same topic. In this incident she insisted on talking about Bubbles and coffee even when the conversation partner attempted to change the topic.

> "For conversation Trudy chose to talk about going to Bubbles for coffee, what a surprise. I tried to vary the topic by asking her what she liked about Bubbles other than coffee, cream, and sugar, but she said 'nothing'" (Assistant 1, Fieldnotes, Intervention, Tenth month).

Other ways that Trudy was described as being persistent in the fieldnotes included: (a) repeating the same statement eight to ten times; (b) insisting that she would be at work the next day when others had pointed out that it was a day off; (c) refusing to finish her morning work and taking a break early; and (d) talking to research staff during Wendy's afternoon instructional session when Trudy was supposed to be working.

There were also examples of Trudy's persistent behavior noted in the IGO data. One of the ways Trudy was persistent was to repeat the same question or statement throughout an observation. In this example, she repeated a question to Annie when they were having coffee at the Coffee Swap.

"Annie: 'Know what I like?'
Trudy: 'No, what do you like?'
Annie: 'I like the different colors that they use to write up on the chalkboard.'
Trudy: 'What do you like?'
Annie: 'Look up at the chalkboard. I like the colors they use.'
Trudy: 'What do you like?'"
[Annie does not respond.] [End of cycle.] (IGO, Follow-up 2)

Another example occurred during the Baseline Phase at the motel. They were out of coffee at breaktime. Trudy repeatedly asked the man at the desk if he was going to put water in the coffeepot as he was making progress on the task. This type of repetition was recorded in five IGOs. Additionally, Trudy was observed telling a conversation partner to either finish a drink or finish eating in five IGOs.

Trudy was also persistent in repeating what others said. This behavior was noted in six IGOs. In the following example, she was having lunch with two other co-workers.

"Sarah: 'What you got all over your mouth? Did you eat something chocolate.'

Trudy: 'Just some chocolate chip cookie. I told her I ate some chocolate chip cookies.'

Sarah: Hold on a minute. I'll get something to ... [Goes into laundry room.]

Trudy: 'Hold on, that's what she told me.'

Barbara: 'Don't spill your coffee.'" (IGO, Follow-up 1)"

Some of the observations of Trudy seemed to be all initiations. Trudy would initiate repeatedly and conversation partners would not respond or would make only one bid in return. Trudy persisted in initiating more interactions in 6 IGOs. In this incident, Trudy was being observed by the first research assistant and was having a break in the laundry room where the substitute teacher, Emily, and two classmates are present.

"Trudy: 'Be at 2:00?'

Kelly: 'No, I don't think it's 2:00.'

Trudy: 'You guess it would.'

Trudy: [to Emily] 'I thought it was time for lunch.'

[end of cycle.]

Trudy: 'Emily, you know what time it is?'

Kelly: 'It's about 10:30.'

Trudy: 'I thought it was time for lunch.'

[end of cycle] (IGO, Baseline)

This interaction is followed by two more initiations of "What are you doing?" directed first to the observer, and then to Brandon at work in the office. Then she said "What?" to no apparent conversation partner. She tried five more initiations in the observations. She continued to ask questions even though five of the bids are ignored by her conversation partners. Trudy responded with another social bid following 26 "no responses" of conversation partners. Also, she once initiated 14 interaction cycles within one 10 minute observation.

Trudy was also persistent in some other behaviors. This included eating the same thing for lunch everyday. She and the staff at the Franchise Motel discussed Trudy's bologna and cheese in 4 different observations. Her co-workers teased her about not wanting to eat anything else. Trudy even talked about eating bologna and cheese at the Franchise Motel when she went to eat at the Hamburger Fast Food Restaurant.

Awareness of Others

Interview data. Three of the six interview respondents made comments about Trudy's awareness of others, her perception of others' needs, and her helpfulness to others. Her first teacher in the preliminary interview described Trudy as "offers to help others and is aware of their needs." Annie described Trudy's helpfulness in this way:

> "... was a person that was willing if she saw somebody ... specially the food idea, she saw someone needed a cup of coffee or something, real willing to ... so she was kind of sensitive to the needs of others." (Acquaintance, follow-up)

Trudy's awareness of the needs of others was considered one of her strengths in social interaction by those respondents who remarked on this quality.

Observational data. Trudy's awareness of the needs of others was noted in six log entries. She was seen: (a) helping a classmate use a vending machine; (b) making sure the students still in training caught their bus; (c) reminding co-workers about food in the microwave; (d) throwing away other's rubbish after meals; and (e) giving Wendy magazines during breaktime. She was also observed in these types of behaviors in seven IGOs. She was observed: (a) putting Wendy's purse away for her; (b) getting sugar for Wendy for her tea; (c) opening a classmate's milk carton; and (d) showing concern over whether or not her co-workers were getting enough to eat. She also could be overbearing in her awareness of others. She nagged Wendy about using too much sugar in her coffee and tried to get Joyce to correct Wendy for the error. Trudy ordered Wendy to pick things up the second Wendy dropped them, and she warned Gloria not to touch anything that was Dave's.

One negative case of awareness was observed in an IGO. One breaktime during the Baseline Phase, Emily, a substitute teacher, had gone into Brandon's office and closed the door. Trudy opened the door and said "What are you doing?" Brandon replied, "Go back and sit down ... " (IGO, Baseline). Trudy had been instructed that she should not interrupt Brandon when the door to his office was closed. So in this one instance she did not demonstrate an awareness of the behavior others expected of her.

Eye Contact

Interview data. The only problem behavior that was noted consistently across interviews was Trudy's need to look at her conversation partners. Joyce described Trudy in social situations this way, "When she does interact, it is verbally appropriate, but lacks eye contact" (Teacher 1, Preliminary). Trudy's work supervisor and acquaintance noted that Trudy needed to improve her eye contact to better participate in social interactions. This need was also confirmed by Trudy's guardian and co-worker.

Observational data. Trudy's eye contact was noted in 14 log entries. In nine (64%) of the entries, it was noted that Trudy's eye contact was poor. In the remaining five entries, the observer noted that Trudy had appropriate eye contact. Eye contact errors were coded in all but two of the IGOs completed with Trudy. More that

10 errors per observation were noted on 15 (55%) of the IGOs.

Fluctuating Problem Behaviors

Interview data. The above data indicated that Trudy was competent in social interactions at least some of the time. She was likeable, friendly, aware of others, and took part in appropriate, interactive, predictable social interactions. The only deficit areas appeared to be possibly too much predictability in social routines and a lack of eye contact. All of the respondents commented on some skill deficits, but did not consider them to be accurate descriptors when Trudy did not exhibit the behavior consistently. These included: (a) length of interaction; (b) resistance to change; (c) stereotypic behaviors; (d) interrupting; and (e) irrelevant responses.

Trudy's social interactions were brief and three interview respondents identified this as a problem. Joyce and Brandon noted that interactions were brief or short, not more than one or two turns. Joyce and Dave noted that Trudy needed to learn skills to extend conversations. The transient nature of brief interactions as a problem is discussed in the section on type of interactions. Trudy did demonstrate the ability to participate in appropriate interactive conversations. Additionally, when Brandon was asked to confirm that Trudy tended to have short interactions, he responded that Trudy was responding more during the follow-up phase than she had earlier.

The next problem was Trudy's response to changes in her routines. Discussion of this problem was initiated by three interview respondents and was confirmed by two others when questioned specifically about the problem. Trudy demonstrated her resistance to changes in routine by demanding coffee breaks, refusing to work, and/or sitting with her head down. Katherine, her guardian, confirmed Trudy's need for a routine schedule this way:

> "Oh yes, she don't want nothing to change. Trudy wants everything her way. She wants it to ... you don't change it, you leave it this way. She can certainly pull one of her fits if you change something." (Guardian, follow-up)

Brandon described a day when the employees had a party and left special refreshments in the breakroom. Trudy did not return to work after lunch that day, but stayed in the breakroom for an hour and a half.

> "When you upset her routine, that's one of her worst things. We had a lunch here, and she sat back there, she would have sat back there all afternoon and ate her cake, drink her coffee, without budging, because, you know, we had all kinds of people back there ... she really wasn't sure what to do or when to do it,

> so she decided to remain sitting back there in the breakroom" (Work Supervisor, Follow-up)

Her co-worker described how the staff at the Franchise Motel responded to Trudy's moods.

> "Now, she might be stubborn sometimes. Then you have to threaten her with Brandon. She'll sit down and you say 'I'll get Brandon.' Then Trudy goes back to work." (Co-worker, follow-up).

The transient nature of the problem was noted even by those respondents who described the behavior. Two noted that it was a problem earlier, but not presently and two others agreed that although Trudy was sometimes resistant that it was not really a problem. For example Annie noted that she saw the moods, but they were not typical.

> "... I had the opportunity to see her in a real resistive kind of mood a couple of times that was a real contradiction and didn't seem to fit how she typically was." (Acquaintance, Follow-up)

The same co-worker who mentioned having to threaten Trudy also felt the behavior was not a major problem.

> "No, not really, she'll get upset about her coffee. But she is pretty good about changes." (Co-worker, Follow-up)

Trudy's employer indicated that the problem was those who changed the routine more than it was Trudy's problem, saying, "its pretty much [a problem] if we decide to change it [the routine]." Only Trudy's guardian indicated that the problem was escalating. Possibly, when the behaviors became less frequent in the work environment, they were increasing at home.

The next problem behavior was Trudy's stereotypic behaviors. She sometimes waved her hands in front of her face and rocked. She also had some meticulous and precise routines she followed when preparing her coffee. Three respondents confirmed the hand waving behavior. Her co-worker described the behavior this way:

> "I have noticed that thing with the hand. She will sort of wave her hand by her face and rock back and forth when she gets excited. Or when I tell her she has been doing good work, then she will wave her hands. She is real happy." (Co-worker, Follow-up)

Annie described the coffee ritual this way:

> "lining up the coffee creamers and holding everything up and putting it in a row; I guess you look at it as ritualistic. She was always real meticulous about doing it a certain way it seemed like." (Follow-up 2)

The behaviors were not constant. No respondent initiated the topic of stereotypic behavior when describing interactions, strengths, or needs. Of the three respondents who confirmed the behavior, one noted that it was not as common as it had been earlier (Work supervisor, Post-intervention) and one noted that ritualistic behavior was not pervasive.

> "Like folding towels the same way, she doesn't have to do that. You show her something new and she will do it." (Co-worker, follow-up)

The next problem behavior, interrupting others, was mentioned by two respondents. Her work supervisor agreed with the interviewer that Trudy had interrupted others in the past, but it was not a problem at the time of the post-intervention interview. Dave commented that Trudy "may need to refrain from speaking out" (Post-intervention).

The final problem behavior, irrelevant responses, was mentioned by two respondents and confirmed by another. Annie described the behavior in this way:

> "She may be talking about something totally different after ... middle of the conversation and it wouldn't occur to her that we're not talking about the same thing or she'll switch right in the middle and you realize that what you've been saying to her and she's been saying, 'yes,' she probably wasn't understanding what you were talking about and she decided to talk about something else or isn't sure what is going on around her ... sense of what was happening there." (Acquaintance, Follow-up)

Brandon indicated that Trudy needed to:

> "respond to the appropriate questions so, lots of times, she'll respond to it when it may not be relevant to what was actually being said. I mean sometimes she says 'I'm going to take a two-hour break or something.'" (Work Supervisor, Follow-up)

Observational data. Each of the above behaviors were also noted in observations. Brief two to three turn interactions were recorded in fieldnotes on five occasions. The amount of time that Trudy was engaged in social interactions during IGOs ranged from .20 to 8.93 minutes. The average length of the individual interactions within the observations was .58 minutes, with a range of .02 to 6.80 minutes. The average length of the total time engaged in interaction during the 10-minute observation was .75 minutes. Trudy made an average of 3.4 bids per interaction cycle in the IGOs. The range was from 0 (i.e., not responding when another made a bid to her) to 16 bids per interaction cycle. Trudy did take part in brief interaction cycles, but also demonstrated the ability to interact in longer cycles.

Trudy's resistant moods were also noted in fieldnotes and in IGOs. Fifteen incidents were noted in the logs. In this example, Trudy was unresponsive to instruction.

> "Trudy was extremely uncommunicative and made only a minuscule attempt to cooperate. We could not do

> baseline with her today." (Research Assistant 1, Fieldnotes, Baseline, Fourth month)

Trudy also refused to work on some occasions.

> "[Brandon] told Dave, Trudy has been having problems in the afternoons which include only doing some tasks and not others." (author, Fieldnotes, Sixth month).

The final example illustrated Trudy's difficulty in adapting to new situations.

> "Trudy seemed pretty confused when I got there. She was trying to take the laundry she'd collected from the second and third floors but they were mopping the laundry room. Another cart was put across the doorway so no one could get in. Trudy was trying to go around the cart. Barbara would tell her that she couldn't come in because of mopping. Trudy would get close to the door and almost sneak in. I redirected her to do the rest of the rooms. She walked to the end of the floor and back. I asked if she'd done any of the rooms. She said, 'no.' I said to go back and do them." (Author, Log, Intervention, Ninth month)

The other log entries indicated that Trudy sometimes refused to remove clean laundry from the assigned rooms, refused to go places when routines were changed and had trouble learning to sort a different way. She would check off all of the room numbers on her list. Trudy also refused to go with Joyce to an appointment for a hair cut and refused to get on a new bus to go to work. Finally, one day when Brandon was instructing Trudy to sort towels from sheets on the floor after Trudy had learned to use two laundry carts, she kept picking them up and putting them together in the cart.

There were just two instances of the resistant moods in the IGO data. Trudy always sat in the same chair during break. Once when Gloria tried to sit in the chair, Trudy yelled at her. The other incident occurred when the class had gone on a picnic. Trudy's lunch had been left in the bus on a hot day and Joyce was concerned that the mayonnaise may have spoiled. Trudy insisted on eating the sandwich and refused to accept other food.

Stereotypic behavior was noted in eight log entries. Six entries noted a presence of some stereotypic behavior (e.g., "Trudy rocked and waved her hands as we walked") and two noted an absence of stereotypic behaviors (e.g., "Trudy kept her hands down"). Some stereotypic behavior was noted in seven of the 27 IGOs. In four IGOs, the behavior was noted less than four times; in the remaining IGOs stereotypic behavior accompanied 10-16 bids.

Trudy was observed interrupting interactions in six incidents, two log entries and in four IGOs. In this example, Wendy and Dave were talking about whether or not Dave was going to come back to the job the following year.

"Dave: 'I don't know if I'll be here'.

Trudy: [walks back to counter where Dave and Wendy are talking] 'Oh, I will in the morning'.

Dave: 'What's that, Trudy?' (IGO, Intervention)

Trudy also interrupted by going into Brandon's office when he was working, by talking to Joyce when she was trying to work, and talking to the author during Wendy's instructional sessions.

Trudy was also observed making irrelevant responses in four log entries and 15 IGOs. In a conversation with Dave about when graduation would be, Trudy responded in this way:

> "Trudy put her arms up and looked away and said, 'March, June, November, 13, 14, birthday. When's your birthday?" (Author, Fieldnotes, Intervention, Eighth month)

The following incident occurred after Trudy's instruction during her morning break.

> "Wendy told me three times today she liked my skirt. Trudy said (one of those times) that, 'You should go home and wear your skirt.' I asked her why I needed to go home to wear it ... Trudy could not answer me." (Author, Fieldnotes, Intervention, Ninth month)

Trudy also spoke to persons who were not within conversational range. In this example, Brandon, Joyce, and Wendy are talking in Brandon's office while Trudy is in the lobby making coffee.

"Wendy: 'I forgot my ? '

Trudy: 'I forgot mine, too.'

[No response was made to Trudy.]" (IGO, Baseline)

In these excerpts from an IGO, Trudy sits with Nelda, a research assistant, in the Franchise Motel lunch room. Trudy makes some comments that do not make sense to the context of the conversation.

"[Before the observation, Nelda has just asked Trudy what Katherine drank on her diet]

Trudy: 'coffee and cream and sweet and low.'

Nelda: 'Sweet and low, huh? No sugar for her.'

Trudy: 'Nope. sweeten her body up. [pause] 'It's about quarter after 4' [stretches are up and looks at arm, she isn't wearing a watch]

. . .

Nelda: 'I'm really looking forward to going to the Connoisseur Coffee Swap this afternoon.'

Trudy: 'Yeah, I mean to have some.'

Nelda: 'I mean this afternoon when we go out.'

Trudy: 'Later.'

Nelda: 'Yes, later this afternoon.'" (IGO Follow-up 1)

In the final example, Trudy and Annie have gone to the Coffee Swap after work. In two sections of the observation, Trudy and Annie seem to be talking about two different things.

"[Trudy opened the creamer.]

Annie: 'You mastered that I see. The creamer. Remember the last time, you didn't know how to do it.'

Trudy" 'Yeah.'

Annie: 'It took a long time to open.'

Trudy: 'Yeah, it was.'

Annie: [laughed] 'It was hard.'

Trudy: 'No, it was not either.'

Annie: 'What?'

Trudy: 'That.' [pointed to something on the table.]

Annie: 'The creamer?'

Trudy: [no response]

. . .

Annie: 'My boyfriend called. He said he'd mailed me some coffee from a place we liked to go in [state name].'

Trudy: 'He told me to take it to the mailbox.'

Annie: 'What, Trudy?'

Trudy: 'When I was at the Franchise Motel, I put Brandon's letter in the mailbox.'

Annie: 'That's right. My boyfriend will put the coffee in the mailbox.'

Trudy: 'I tried to put Brandon's letters.'

Annie: 'Oh, you took the mail out for Brandon.'

Trudy: 'Not the mail, letters.'

Annie: 'Do you think Brandon was sending valentines?

Trudy: 'Letters!' [negative affect]." (IGO, Follow-up 2)

The observation continued with confusion about the difference between valentines and letters.

There was some support that Trudy demonstrated the problems mentioned in interviews, sometimes, but not enough to be a problem. Trudy sometimes was resistant about work and other activities, sometimes exhibited stereotypic behaviors, sometimes interrupted others, and sometimes made bids that seemed irrelevant to the context. As noted above, these behaviors were not consistent. Some of Trudy's interactions were quite appropriate.

Wendy

Wendy lived in a rural area within the district where she attended school. She lived with her mother and father and a younger brother in a brick ranch-style home. Wendy's married sister lived nearby and visited the family regularly. Wendy went to church, out to eat, and shopping with her family.

Wendy did not graduate during the course of the study. She had three high school teachers. She was in the same class as Trudy and Doris and had the same two teachers. The year after Trudy and Doris graduated and Wendy was in school, she had a third teacher, Bob. Wendy received vocational training at the same Franchise Motel as Trudy. At the beginning of the study, she received vocational instruction at the motel in the mornings and community-based instruction in the afternoons. By the end of the study, she was working the full school day at the motel. In the mornings, she gathered dirty linens from check-out rooms and in the afternoons worked in the laundry room. Wendy was in the social skills training program for part of two school years.

Six individuals responded to seven interviews regarding Wendy in two phases. The interviews for Wendy were pre- and post- intervention, except for one interview completed mid-way through the Intervention Phase. There was no follow-up phase for Wendy because she did not graduate during the course of the study. Wendy's mother and her first teacher were interviewed prior to the intervention. Wendy's second teacher was interviewed at the end of the school year, in the middle of the Intervention Phase. Wendy's third teacher, her work supervisor, a co-worker, and her mother were interviewed following the Intervention Phase. The categories listed in Table 4.3 and described below were developed from responses of multiple respondents.

Table 4.3

Triangulation of Wendy's Descriptor Categories Across Interview Respondents

	Interview Respondents					
Descriptor	P	T_1	T_2	T_3	WS	CW[1]
Type of Interaction						
Predictable	X	X	X	X	X	X
Conversational		X	X	X	X	X
Verbose			X	X	X	X
Friendly			X	X	X	X
Attentive				X	X	
Problem Behaviors						
Greeting Strangers	X	X	X			
Familiarity		X	X		X	X
Interruptions			X	X	X	

[1] P = Parent T_1 = First teacher T_2 = Second teacher
T_3 = Third teacher WS = Work Supervisor CW = Co Worker

Observational data for Wendy included IGOs and journal entries. Eighteen IGOs were completed with Wendy in the work setting, fast food, and full service restaurants. Seventy-six log entries were made describing social interactions that occurred around instructional sessions either at school or at the motel. An additional 36 entries described interactions that were not related to instruction.Type of Interaction

Interview data. Wendy's interactions were predictable, conversational, and verbose. Every interview respondent commented on the predictability of Wendy's interactions. Her mother described a typical interaction as:

> "She'll go up to people and ask them what their name is, when their birthday is. ..." (Preliminary)

Her co-worker described Wendy's typical morning routine:

> "She speaks every morning when she gets in. She says 'Hi, Barbara. How are you?' and I say 'Fine.' And then she'll say, 'I like you,' or 'I like your hair' or something. Then she'll say, 'You got some chewing gum?'" (Co-worker, Post-Intervention)

In the final example, Wendy's third teacher described the typical interaction as:

> "She'd say, 'Hi, Bob, how are you?' I'd say 'fine.' And Wendy would say, 'Do you like my high school ring?' and she'd show me her ring, and I'd say, 'Wendy, yes, it's very nice.' She'd say something like, 'What color is it?' and I'd say, 'Wendy, you know what color it is. Tell me what color you think it is,' and she'd say it was pink and she'd say, 'Do you think I can wear my ring when I graduate?' I'd

> say, 'Why, certainly.'" (Teacher 3, Post-Intervention)

The most often mentioned topics were: (a) comments on liking appearance; (b) asking for feedback (e.g., "Are you proud of me?); (c) talking about her boyfriends; (d) asking for things (e.g., gum, money for soda); (e) high school rings; (f) shaking hands; and (g) age and birthdays. Not only were the topics predictable, but Wendy reportedly brought up the same subject as new, three or four times a day.

Five of the six interview respondents described Wendy's interactions as being conversational. Her second teacher described her interactions this way:

> "When she does think about things, occasionally she takes turns talking and expressing opinions about things." (Teacher 2, Intervention).

A co-worker responded to the question regarding what Wendy was like during interactions:

> "She can hold a conversation well. She can ask questions. She loves to ask questions. She can hold a conversation." (Co-worker, Post-Intervention)

Other responses included in this category were related to being able to initiate, doing well in interactions, and continuing interactions.

Three respondents indicated that Wendy's participation in interactions were verbose. Her work supervisor described her as talkative and said, "Like if she asks you a questions, she wants an answer to it, but she doesn't want to wait ... she wants to give you another one on top of that." (Work-Supervisor, Post-intervention). Her second teacher explained that it

> "takes awhile for her to start taking turns and not do all the talking ... She seems to enjoy conversations so much she does not want to do anything else besides talking." (Teacher 2, Intervention)

Observational data. The observational data supported the respondents conclusions that Wendy was predictable, conversant, and verbose. Two hundred sixty-five cycles and new topics were recorded on the IGOs, 192 (72%) were initiated by Wendy. The most common topic initiated by Wendy was either "I like ... [some article of clothing]" or "I like you;" 18 (9%) initiations. The next most common topics were: (a) reference to "watching weight" or food being "good for my diet," 10 (5%) initiations; (b) some aspect of graduation, eight (4%) initiations; (c) "nice" or "messy day, ain't it?" seven (4%) initiations; and (d) getting married or being engaged, five (3%) initiations. Other repeated topics were asking about the age of conversation partner or others; asking about other persons known by the conversation partner, but not by Wendy; going out to eat; making a mess; and being proud of Wendy; four initiations each. There was only one IGO that did not contain at least one of the commonly initiated topics. In contrast, there were some topics that Wendy initiated only once in the observations. Seven (4%) of these initiations were recorded. Topics included: (a) liking bagels; (b) Thanksgiving traditions; (c) times to get up; (d) mother's new car; (e) Ray Charles; (f) the Christmas tree at the hotel; and (g) attending a Christmas party.

The topic of conversation was recorded in log notes 63 times. The most common topics were similar to the IGO topics and those listed by interview respondents. They included: (a) liking something or someone, seven (11%) initiations; (b) weddings or engagements seven (11%) of initiations; (c) graduation, six (10%) initiations; (d) weather, five (8%) initiations; and (e) watching weight, four (6%) initiations. Other topics included going out to eat, boyfriends, how old people were, and working together. Based on the fieldnotes and the IGOs, it appears that Wendy's conversational topics were predictable. Even though the absolute frequency of each topic are not high, Wendy averaged initiating a new topic or interaction cycle 10.7 times per 10 minute observation, so the common topics were likely to occur at some time during an observation.

Wendy did seem to have appropriate conversational skills. Six entries were made in fieldnotes that referred specifically to appropriate conversations of several turns with Wendy. She varied her bids in the IGO interactions. Wendy used questions 33.4% of her bids; shared factual or descriptive information in 28.62% of the bids; and shared opinions about topics 10.8% of the bids. Wendy made an average of 34.72 bids per 10 minute observation, with a range of 11 to 59. These data support that Wendy could participate in conversational interactions.

The final description of Wendy's type of interaction was verbose. Based on the IGO data, Wendy made social bids at a rate of 3.5 per minute, and not less that 1.1 per minute and as much as 5.9 per minute. Of her social bids, 69% of the statements consisted of three or more words when compared to phrases of one or two words. These data indicate that Wendy could be talkative.

Two examples of Wendy's interactions are given from the IGOs. The first illustrates Wendy's type of interaction in which she moves from one predictable topic to another. The observation occurred during a break at the Franchise Motel. Wendy talked with a research assistant, Kelly, Trudy, and her employer, Brandon.

"Wendy: 'I like your shirt.'
Kelly: 'Thank you. I can't see yours because you're wearing that uniform.'
Wendy: 'If you want me to, I can take it off.'

Kelly: 'No, that's okay. I can see it has my favorite color--red.'

Wendy: 'Red and white.'

[Brandon enters the room.]

Wendy: 'Isn't that right, Brandon, red and white?'

Brandon: 'Red and white, yup.'

[End of interaction cycle] [Brandon leaves]

Wendy: 'Nice day, isn't it, Kelly?'

Kelly: 'What?'

Wendy: 'Nice day, today.'

Kelly: 'Yeah, but it's going to get rainy.'

Wendy: 'I got a rain jacket, do you?'

Kelly: 'Yeah.'

Wendy: 'What kind?'

Kelly: 'Oh, it's just a blue one, no particular kind.'

Wendy: 'I have a blue one, too.'

[End of interaction cycle] [Brandon re-enters and leaves, just walking through the laundry room.]

Trudy: 'I have a red sweater.'

Kelly: 'I do too.'

Wendy: 'I like your sweater.'

Kelly: 'Thanks.'

[End of interaction cycle.]" (IGO, Baseline, second month)

This second example is a conversation between Wendy and her second teacher Dave. They walked over to Bubbles during break time. Two other students were also present.

> "[Trudy and Dave discuss going to the community-based training this afternoon. Wendy looks in magazine.]
>
> Wendy: 'Look, Stevie Wonder.' [points to picture.]
>
> Dave: 'Well, that's Ray Charles.'
>
> Wendy: 'Ray Charles?'
>
> Dave: 'He's a good piano player.'
>
> Wendy: 'What's the name?'
>
> Dave: 'Ray Charles.'
>
> Wendy: 'Ray Charles and [points to other person in picture.]
>
> Dave: 'I don't know who the other person is.'
>
> Wendy: 'I like this.' [points to magazine.]
>
> Dave: 'You like these better than the magazines at school?'
>
> Wendy: 'Yeah. Look, this is funny.'
>
> Dave: 'Those are good cartoons. Know who makes this cartoon?'
>
> Wendy: 'Who?'
>
> Dave: 'Linda Barry.'
>
> Wendy: 'Who's Linda Barry?'
>
> Dave: 'A cartoonist. I saw her on tv once on Johnny Carson.'" (Baseline, IGO, seventh month)

The waitress brought Wendy's coffee and Wendy spilled some, so the conversation changed to cleaning up the mess.

Wendy did show the ability to maintain a conversation. Some of the conversations were repetitive and predictable, while others were novel. Wendy also was talkative.

Friendly

Interview data. Wendy was described by four of the respondents as being "friendly," "outgoing," or "happy-go-lucky." Her third teacher summarized Wendy's strengths this way: "I'd say her biggest strength is just being a very likeable, friendly person" (Post-intervention). Her second teacher described Wendy this way: "She's very outgoing and very friendly even when I or someone else doesn't answer or expresses annoyance ..." (Intervention).

Observational data. There were 14 log entries that reported Wendy making friendly and appropriate greetings. She regularly greeted the author and research assistants when they arrived at the school or at the Franchise Motel. She also greeted other students and co-workers. Wendy was also observed to offer to share food with others.

Wendy had the opportunity to greet others in seven of the IGOs. These opportunities typically occurred when someone went through the laundry room during breaktime or when a co-worker entered the lunch area. Wendy greeted individuals appropriately in all seven occurrences.

However, in two of the observations she greeted the same person two times.

Wendy also demonstrated her friendliness by telling others that she liked them. Wendy told research staff and co-workers that she liked them in four observations. Additional evidence of Wendy's friendliness is found the section below, titled "attentive." Thirteen (72%) of Wendy's IGOs contained some bids coded with "positive affect." (Interobserver $\underline{K}$ = .16 .49; $\underline{r}$ = .85 .87)

Attentive

Interview data. Two of the respondents mentioned that Wendy was attentive to her conversation partners. Her supervisor described her attentiveness this way, "She's usually always aware of who's talking to her, she's looking at them in most cases" (Post-intervention). Her second teacher described Wendy's developing awareness of when a conversation partner wished to interact and Wendy's willingness to respond to partners' requests to change the topic of conversation.

Observational data. The observational data indicates that Wendy was sometimes attentive. As noted earlier, Wendy often asked how others known to only to the conversation partner were (e.g., "How's your husband?"). In this excerpt from a research assistant's log, Wendy had been attending to information from the conversation partner.

> "Wendy remembered that Sam [research assistant's husband] was sick and asked about him. It was nice to hear Wendy ask, 'Is your husband better?' instead of 'How's your husband?' (Research Assistant 2, Log, Intervention, thirteenth month)

Two other log entries included remarks about Wendy's attentiveness.

Other signs of Wendy's attentiveness were her ability to maintain interaction cycles for an average of 10 turns, ranging from 3.6 to 18.5 per IGO. Wendy also remembered information about others, such as spouse and children's names in observations.

There were also negative case examples of attentiveness. This illustration of Wendy's lack of attention is taken from the fieldnotes, following a training session with Trudy at the Franchise Motel.

> "Wendy did the same routine four times. She said, 'Pretty day today, ain't it?' She got an affirmative response, then said, 'May rain later.' This got another affirmation. Then she'd say, 'That's why I brought my raincoat today.' She did it one time with me, one time with Dave, and once with one of the housekeeping staff.
>
> Wendy started the nice day routine again with me. I asked Trudy what she thought. Trudy looked at me and kept her hands down again, but could not be

heard over the dryer. Wendy did not pay any attention to Trudy. I asked Wendy what she would do when she got home. Wendy said, 'Do you like tennis shoes?' Then she said she'd go home, lay down, and watch tv." (Author, Log, Intervention, 8th month)

Examples from Wendy's problem behavior of interruptions in the following section also show that sometimes she had difficulty attending to conversation partners.

Problem Behaviors

Interview data. The above data indicated that even though her topics were predictable and Wendy talked in abundance, she was basically skilled at social interactions. Wendy was included in the study because of some of her problem behaviors. These included: (a) greeting strangers; (b) familiarity with conversation partners; and (c) interrupting others at work and in conversation. Greeting strangers was mentioned by three of the interview respondents. The problem was great enough that her mother said, "Sometimes, I'm afraid to take her out. I just don't know what she'll say" (Teacher 1, Pre-intervention).

Wendy's next problem behavior was an over-familiarity with conversation partners. Her first teacher described some of the overlap between Wendy's greetings of strangers and her familiarity with conversation partners.

> "Some questions are inappropriate because she gets too personal. She sometimes asks these inappropriate questions of strangers. ... She may be overly affectionate with adults. She will hold hands, continue hand shakes too long, and say 'I love you' to staff." (Baseline)

Her work supervisor gave specific examples of questions:

> "she asks like about your husband ... 'How old is he?' 'Do you sleep together?' or whatever, I mean and that's exactly how she comes out with it. She's really persistent in it. She can just ask a whole line of questions that involve that one person." (Post-intervention).

Other examples of familiarity included hugging and touching and discussion of feminine hygiene.

The final problem behavior that was triangulated across interview respondents was Wendy's interrupting. The second teacher described the skill of "differentiating when its appropriate to talk to people, not talking when they're busy or talking to somebody else" (Intervention) as the most relevant aspect of the instructional program for Wendy. The other two respondents who remarked on Wendy's interrupting noted that the behavior was improving in the Post-intervention Phase.

Two other problem behaviors were mentioned by interview respondents, but not triangulated in response to the first three interview questions regarding description of interactions, strengths, and needs. These two behaviors were distractibility and aggression. Wendy's second teacher initiated that she was easily distracted in social interactions and this was confirmed by her third teacher and her work supervisor. Her work supervisor described the distractibility as Wendy's wanting to be in two places at one time.

> "if you're here and I'm over there, and she's talking to you, she wants to talk to you and me, or she wants to know what's going on in both times ... the impulse is like ignore you for three seconds and see what's going on over there or make a comment." (Post-intervention)

Only Wendy's parent mentioned aggression. Wendy hit her mother, father, and brother for no apparent reason at home. Her mother also reported that other children in the neighborhood were afraid of Wendy, because they believed Wendy might hurt them. This behavior was not noted by other interview respondents.

Observational data. Wendy exhibited some of the problem behaviors noted by interview respondents. Wendy was not observed talking to strangers during the study. There were strangers present in two of the observations. In neither case did Wendy initiate an interaction.

Wendy appeared to be inappropriately familiar with co-workers and others. Seven incidents are reported in the fieldnotes. There were three entries where it was noted that Wendy initiated handshakes as greetings and then continued to hold hands with co-workers. The author observed Wendy holding hands and stroking the face of a classmate in the high school cafeteria. Three conversation partners commented on Wendy's choice of topic being inappropriate: (a) asking the age of a spouse; (b) discussing her sister's fertility; and (c) how long it had been since she'd had a boyfriend. A serious incident was reported to the author by the employer, Wendy "grabbed and kissed" the son of a co-worker when he had come to the Franchise Motel to visit his mother.

There are two IGOs that included examples of Wendy asking ages inappropriately. Other examples of familiarity from the IGOs are asking about others who are known to the conversation partner, but unknown to Wendy and telling the conversation partner she likes them. In one observation, Wendy told a co-worker that she loved her and they hugged in the hallway. Other co-workers were not observed in physical contact. Both the fieldnotes and the IGOs supported the interview respondents' perception that Wendy could be inappropriately familiar in social interactions.

Wendy was also observed to interrupt others. Nine log entries included information about Wendy interrupting. For example,

> "... Wendy talked about her little brother having a field day. I started to ask her a question about it and was right in mid-sentence when Wendy walked over to Susan [a co-worker] and repeated to her what she had said to me. ..." (Author, Fieldnotes, Intervention, 8th month)

Wendy's interruptions could be leaving someone in mid-sentence to go and interact with someone else, interrupting two others in the midst of interaction, or interrupting the conversation partner with another bid.

There were also observational data to support that Wendy's interruptions were inconsistent. Two log entries included comments on specific instances of Wendy not interrupting when she had the opportunity. Also, three IGOs contained examples of interruptions, so in 15 (83%) of the IGOs, Wendy did not interrupt her conversation partners.

The problem behaviors of interruption and of familiarity were observed in Wendy. Wendy also demonstrated the ability to self-monitor these problem behaviors and did not exhibit them consistently. The observational data did not corroborate Wendy's initiations to strangers or aggression.

Social Skills Instructional Program

The social skills instructional program was developed to improve student use of conversational skills that would be likely to initiate, extend, and terminate social interactions in appropriate ways. The instructional session was divided into three parts: a) massed practice of a new skill; b) review of maintenance skills; and c) practice conversation. Instruction combined a modified general case method with time delay. Two measures of student performance were used: a) the Interaction Generalization Observation; and b) the performance on cases or examples for training or generalization. The validity and reliability of each instrument will be presented followed by a discussion of procedural reliability, followed by a description of the results of the study.

Interaction Generalization Observation

Validity

Instrument development. Instrument development began through discussions with researchers who had developed similar measures (i.e., Brinker, Haring, & Strain) and with the author's dissertation committee. A pilot IGO was developed following these consultations. The author and one research assistant then used the pilot IGO to observe individuals in settings similar to those selected for generalization. Observations were conducted on both individuals with disabilities and individuals without disabilities in shopping malls, at fast food restaurants, at parks, and during leisure time in the high school class where participating students attended. After each observation, the two observers would meet to compare observations and make revisions in the IGO. The final version was completed when the observers had an average reliability of 80% across all categories that were coded and no less than 60% on any one category on three consecutive observations.

Expert rating. The final version of the IGO was then rated for its validity to measure student social interaction skills and to describe the social interactions in which they participated. The content validity of the measure was determined through a review by eight individuals with expertise in the areas of: (a) students with severe disabilities; (b) measurement of social interaction; (c) social interactions between persons with disabilities and those without disabilities; (d) instrument construction; and/or (e) qualitative methodology. Seven of eight reviewers completed a questionnaire by rating the purposes of the IGO on a four point Likert-type scale as "a valid measure for the purpose" or "not a valid measure for the purpose." Their average ratings are reported in Table 4.4.
Overall ratings indicated acceptable validity (range of

Table 4.4

Validity Ratings of the Interaction Generalization Observation.

Purpose	Rating
To assess:	
the amount of time and individual engages in a social interaction	1.3
the frequency of the social bids a student makes	1.1
the frequency of bids others make to a student	1.2
the response of others to a student	1.2
the topics discussed during an interaction	2.1
the types of remarks (e.g., yes/no questions) made by the interactors	2.1
the social skills (e.g., returns greetings) used by interactors	2.1
the types of errors (e.g., interrupts) made by the interactors	1.8
the overall ability to participate in social interactions	1.6
To provide through use of the above measures) an overall measure of social interaction skills	1.4

(table continues)

Table 4.4 (cont.)

Validity Ratings of the Interaction Generalization Observation.

Purpose	Rating
To describe:	
the quality of social interactions	1.6
the patterns of interactions	1.0
the ways others react to students	1.6
the behaviors interactors use during interactions	1.4
To compare:	
the changes in interactions over time	1.3
interactions in different environments	1.3
interactions including different individuals	1.4

Note: Ratings are based on a four point Likert-type scale; 1="a valid measure for the purpose" and 4="not a valid measure for the purpose."

2.1 to 1 where 1 was equivalent to the most validity and 4 was equivalent to the least validity for the purpose). The purposes that received the poorest ratings were: (a) to assess the topics discussed during an interaction (average rating of 2.1); (b) to assess the types of remarks (average rating of 2.1); (c) to assess the social skills used by the social interaction participants(average rating of 2.1); and (d) to assess the types of errors made by the social interaction participants (average rating of 1.8). In all cases where reviewers rated the validity as poor (i.e., 3 or 4), they provided comments. All of the reviewers who rated the validity of the above purposes as poor commented that the information collected on the IGO could be used to evaluate these characteristics in a valid manner, but that the information they had did not allow them to determine the validity for this purpose.

The reviewers were given only the IGO directions for implementation and definitions for coding completed during observations. Definitions and procedures for analyzing topics, types of remarks, skills, and errors were not coded during the observations, but were analyzed later. All of the reviews who gave low rating to the validity of the IGO for the topics not coded during observations stated in the comments that it could be valid for those purposes. Therefore, the IGO data was used for these purposes as well as those with more positive ratings in the final results. The definitions and instructions were revised to reflect the reviewers recommendations.

In addition, the reviewers questioned whether or not the instrument could be used to measure the behaviors of those who participated in interactions with the student.

The instrument was not used for this purpose, but rather to describe bids and responses made to the student.

Pilot study. A pilot study was conducted to determine if the instrument differentiated between groups of students with severe disabilities who were identified as being deficient in social skills and a group of students identified as not being deficient in social skills. The study was conducted in a middle school classroom for students with severe disabilities. The observations occurred during an unstructured time when non-disabled peers were present. The students were engaged in playing games. The available games included slot cars, a magnetized fishing game, a casio piano, and other electronic games.

The teacher in the classroom was asked to rank the students based on social behavior. He then identified four students to the observers without identifying the students ranking. The four students included the two students ranked as being the most skilled in social interactions and the two students ranked as being the least skilled. After each student had been observed, the teacher provided the ranking to the author.

The data from the four observations is summarized in Table 4.5. Earl had cerebral palsy and was not able to walk or push his wheelchair independently. He had good verbal skills, but most of his language was echolalic.

Earl played slot cars with a non-disabled peer and an assistant teacher during the IGO. Tracy also had cerebral palsy and could not move about independently. Her communication was limited to a "yes" or "no" response that was not verbal. Tracy was seated at the slot car table with Earl, two other students from the special education classroom, a non-disabled peer, her teacher, and an assistant. Tracy refused to participate in the game, except for one turn with full physical guidance. Mary did not use verbal language for communication. She played the fishing game with a non-disabled peer during the observation. Carl also had cerebral palsy and did not use verbal language to communicate. He used head motions to indicate "yes" and "no." He played slot cars with two non-disabled peers during the observation.

Some of the variables in the IGOs did differentiate between the students who were ranked differently. Those students with the low ranking spent less time engaged in social interaction and made fewer bids to their conversation partners. Also the students with the lower ranking were less likely to respond to conversation partner's bids. Additionally, conversation partners did not respond to almost half of Tracy's social bids.

Some variables did not differentiate between the groups of students. These were: (a) the frequency of interaction cycles; (b) the number of bids per interaction

Table 4.5

Validation of IGO Variables in Pilot Study

IGO Variables	Students with Lowest Rank		Students with Highest Rank	
	Earl	Tracy	Mary	Carl
Interaction cycle frequency	5	7	8	4
Time engaged in interaction	2.47m	3.07m	6.23m	9.07m
Engaged time per cycle	.49m	.44m	.78m	2.02m
Student social bids	9	16	28	40
Bids made to student	22	14	36	55
Social bids per cycle	6.2	4.2	8	23.8
Interaction cycles initiated by student	1(20%)	6(86%)	3(38%)	1(25%)
Student did not respond to conversation partner	9(41%)	4(28%)	2(6%)	0(0%)
Conversation partner did not respond to student	0(0%)	7(44%)	0(0%)	0(0%)
Topic of bid initiated by student	15(38%)	27(66%)	22(32%)	84(87%)

cycle; (c) the range of bids per interaction cycle; or (d) the cycles initiated by the student. However, these variables did differentiate among individual students.

For example, Tracy was more likely to initiate cycles that the other students and Carl was able to maintain the longest interaction cycle. Other information from the observations also helped explain the differences in the students. Earl made some irrelevant responses, such as responding "spark plugs" to the question "You want to play with the corvette?" He did not answer several questions asked by the assistant teacher and the peer. Tracy was the only student to demonstrate negative affect. Most of her responses were crying or yelling. The staff at first offered her opportunities to play the game, water, and food. Tracy often did not respond and then would initiate another interaction by yelling. Most of Mary's participation was passive. She allowed the peers to guide her through playing the game, but demonstrated little initiative. She did model pretending to eat some of the fish that the students had "caught" near the end of the observation. Carl's participation was most often making eye contact with peers and smiling or laughing. He would also gesture to the controls when it was his turn to control one of the cars.

The IGOs provided some quantitative information that indicated the teacher's ranking of the students. The additional qualitative information helped to explain the differences in the ways that the students participated in interactions. The pilot sample also indicated that the observational method was useful for observing students with a wide range of skills and abilities.

Reliability

Two types of reliability data were collected for the Interaction Generalization Observations: (a) interobserver reliability; and (b) coding reliability. Interobserver reliability was conducted to determine the similarity between observer transcripts. Coding reliablity was conducted to determine the similarity of the categorizations of the bids on the IGO transcripts between two independent coders. The first procedures evaluated the reliability of the observers recording the data. The second procedures evaluated the reliability of the analysis of the data after it were collected.

There were two phases of interobserver reliability: preliminary and ongoing. During the Preliminary Phase, the assistants and the author conducted reliability trials until an acceptable level of reliability was reached. Ongoing interobserver trials were also conducted periodically during all phases of the study.

Interobserver reliability. The Preliminary Phase of interobserver reliability was completed before collecting data for the study. Following each observation, the data were analyzed for percent agreement on the following categories: (a) the target student's bid; (b) the antecedent to the bid; (c) the response to the bid; (d) the affect (i.e., positive, negative, or neutral); (e) the category (i.e., initiation, expansion, or termination); (f) the appropriateness of the student bid; (g) the reason for the inappropriate coding (i.e., volume, orientation, distance, sensibility, or stereotypic behaviors); (h) the end of the interaction cycle; (i) the duration of interaction; and (j) the changes in setting. Observers continued trial observations until they reached an average of 80% across each category and no less than 60% for one category. Reliability was determined by dividing the number of agreements by the total of agreements and disagreements and multiplying by 100.

There were two periods of preliminary trial observations during the course of the study. The first research assistant and the author practiced observations before the Baseline Phase of the study. The last three of 12 observations met the standards for training. Reliability ranged from 63 to 100% per category. Average reliability across categories ranged from 87 to 89%.

A second research assistant was hired after the end of the Intervention Phase and before the follow-up phases. She and the author completed another trial phase for IGO observer reliability. The second research assistant completed 13 preliminary observations with the author. The range of reliability for categories on the last three preliminary observations ranged from 60 to 100%; the average reliability ranged from 84 to 92%.

Interobserver reliability was also conducted during all phases of the study. Observer reliability was conducted on 14%, or 11 of 77, observations. The Kappa coefficients for data collected by the author and the first research assistant for the preceding categories ranged from .35 to 1.00. The Kappa coefficients for data collected by the author and the second research assistant ranged from .61 to 1.00. The individual Kappas for each category are listed in Table 4.6. Kappa coefficients for each subcategory are located in Appendix E.

While "hard and fast rules" may oversimplify the interpretation of the Kappa coefficient, Suen & Ary (1990) report the following as a general guide in interpretation. A Kappa with a positive value indicates the observers agree more frequently than would be expected by chance. A negative Kappa indicates that observers agree less frequently than would be expected by chance. A Kappa of .60 or better is considered "acceptable" and a Kappa of .80 or more is considered "good."

The Kappa coefficient reported for interobserver agreement in this study should be regarded as conservative. The data collected were not interval data. The observers recorded all of the social bids that were observed. The observers did not record intervals in which

Table 4.6

Interobserver Reliability for Interaction Generalization Observations

Category	Kappa 1st asst.	Kappa 2nd asst.
Locations	1.00	1.00
Activity	.98	1.00
Type of Remark	.57	.61
Repetitions	.35	.91
Interaction Cycle	.61	.96
Generalization	.80	.91
Speaker	.77	.77
Change of Topic	.68	.79
Topic Initator	.73	.69

no interaction occurred. Thus, for determining the Kappa coefficients in this study, each bid was treated as an interval. There was no way to determine the exact number of bids that could have occurred, but did not occur and that both observers agreed did not occur. Therefore, the proportion of agreement on nonoccurrence included only the bids observed by one or both observers and not the total possible number of bids that did not occur.

In addition to Kappa coefficients, Pearson product-moment correlations were also calculated to assess the interobserver reliability. The Pearson r was an appropriate measure for comparing reliability on frequencies across observations.

Pearson product-moment correlations were calculated for the categories of behavior that were reported as frequency of occurrences per observation. These categories were: (a) the potential conversation partners present; (b) the participating conversation partners; (c) the activity; (d) the frequency of social bids; (e) the type of remark; (f) the repetitions; (g) the interaction cycles initiated; (h) the amount of time engaged in interaction per observation; (i) the frequencies of generalization; (j) the average time engaged in interaction cycles; and (k) the number of social bids per interaction cycle. The correlations for observations conducted by the author and the first research assistant ranged from .61 to .99. The correlation coefficients for the author and the second research assistant ranged from .66 to .99. The individual correlations for each category are listed in Table 4.7. The correlations for each subcategory are located in Appendix E.

Two categories were dropped from any further quantitative analysis based on the results of the interobserver reliability. These categories were "affect" and "appropriateness" of the remark. The Kappa coefficients for "affect" ranged from .10 to .78 and the

Table 4.7

Interobserver Reliability for Interaction Generalization Observations

Category	r 1st asst.	r 2nd asst.
Potential Conversation Partners	.88	.96
Participating Conversation Partners	.95	.93
Activity	.99	.98
Frequency of Social Bid	.96	1.00
Type of Remark	.90	.96
Repetitions	.88	.92
Interaction Cycles	.61	.96
Time in Interaction	.90	1.00
Generalization	.74	.98
Time per Interaction Cycle	.98	.83
Social Bids per Interaction Cycle	.99	.99

Pearson product moment correlations ranged from .85 to .90. The correlations for "affect" indicate that the data may have accurately reflected the level of positive, neutral, and negative affect that occurred in each observation, the individual data for the subcategories of each affect were so low (.10 to .49) as to make reliability of the data questionable. There are two possible reasons for the low reliability in this category. One explanation is that the observers could not always see the faces of all participants in an interaction. Additionally, when two observers wereemployed in different positions, they may not have seen different individuals in the interaction. The second reason for low reliability could have been explained by the nature of the observation technique. Because the observers were attempting to transcribe all of the verbal interactions, at times they may have been looking down at the IGO forms rather than observing affect during the next bid. These reliability coefficients were lower than Brinker and Thorpe (1984) obtained using a similar instrument. However, the observers employed by Brinker and Thorpe were not attempting verbatim records of verbal interactions as was done in this study. Reliability may also have been lower in the current study because of the students engaged in higher rates of interaction than did the students in the Brinker and Thorpe study.

The reliability of the "appropriateness" category had a similar pattern to the "affect" category. The overall correlation coefficients ranged from .75 to .93, but the individual Kappa coefficients for individual subcategories (e.g., orientation, volume) ranged from .10 to .93. As in the "affect" category, low reliability also could have been explained by observer positions, the recording technique, or the rate of interaction. Observer position was a particular problem when observing Trudy. The observers discovered during the first Follow-up Phase that Trudy appeared to be oriented to her conversation partner when observed from one side but not from the other side. This was attributed to her visual disability. Another factor that may explain low reliability in the "appropriateness" category is that of observer familiarity with the students. "Inappropriate volume" was defined as not being understandable to the conversation partner(s) or using an inappropriate volume for the setting. However, as the study progressed, the observers improved in their ability to understand the students, particularly Doris. It became difficult to differentiate between when the students were actually "inappropriate" and when the conversation partners were poor listeners.

The line by line coding of each social bid and frequency correlations are not the only way to conceptualize the reliability of the observations. Therefore, four sample observations are included in Appendix G. These observations are included to give the reader a "feel" for the observations including both observers and all of the participants.

In Appendix G, there are two IGOs of Doris. The first pair of IGOs were completed by the author and the first research assistant, when Doris went to a fast food restaurant with three other high school students. The other pair of Doris's IGOs were completed by the author and the second research assistant at the sheltered workshop where Doris worked. During the first observation at the fast food restaurant, approximately 9.5 minutes were spent in interaction, so the observers were writing continuously. The first exchanges illustrate the reliability problem with "affect." The first exchange consists of three bids. Thom said, "Do you like that ice?" One observer recorded Doris's response as "mumbled" and the other observer recorder reported that she "laughed." Thom asked either, "Like it better than hot chocolate?" or "You like that ice better than hot chocolate?" Both of the observers recorded the first bid as positive and one of the other two bids as positive. The reliability of coding for affect is one out of three, an unacceptable index. However, one could state that a positive exchange occurred between Thom and Doris, that Doris's response to the question was unclear, and that Thom was asking Doris questions requiring a yes or no response regarding her opinions about the ice she was eating and about hot chocolate.

Additionally, in this pair of observations, "end of cycle" was especially difficult to agree upon. The interaction participants were engaged in conversation most of the time, the topics changed abruptly and may have been preceded by pauses. When the pauses in a conversation were close to the 20 second cut-off, the reliability for determining whether or not the cycle was over became more difficult.

This observation also contains the most blatantly different interpretations by observers. Near the end of the observation, one of the partners left. Doris called him back and said either, "I like your sweater," or "See you later."

Despite the reliability of the observation, a reader of either IGO record could probably come to similar conclusions regardless of which observer's report was read. First, a number of topics were discussed, including, catching the bus, Doris's spinning of an ashtray, music by Brian Adams, a watch that Matt was wearing, the weather, vacations, swimming, boyfriends, Doris's last name, what had happened with another student as school that day, letters, Matt leaving the table, and a sports banquet. Secondly, the subjects changed often in the conversation and usually abruptly. Thirdly, the conversation peers asked questions for opinions or more information from Doris. The questions were usually answered with a "yes," a "no," or a one or two word phrase. The conversation partners appeared to be looking for a subject that they could discuss with Doris. Additionally, there were several examples of ways in which Doris's limited interaction skills affected the others ability to maintain interactions. There was some confusion about whether or not Doris liked to swim or was afraid of it. There were several examples of Doris's responses being difficult to interpret for both the observers and the conversation partners. Also, there were two examples of peer disapproval of Doris's behavior in both observations, once when she burped and a second time when she was tracing letters on the tabletop.

The next two IGOs that are included in Appendix G are very different from the previous observation. This observation was completed after Doris graduated and was employed at the sheltered workshop. Both observations show that there was limited interaction, most of the interaction was motor (e.g., tapping, pointing, making eye contact), the interaction cycles were short, and Doris was difficult to understand. In these observations, some of Doris's bids appear to be unrelated to the context which also made interpretation difficult for the observers.

The next observations in Appendix G were completed during breaktime in the laundry room of the motel where Trudy worked. The reliability observer was the first graduate assistant. In this observation, there was not much interaction and the observers' IGOs are very similar. The main disagreement between the observers was in recording motor responses to "Excuse me," when Trudy was passing close to the observers. Both observations make it clear that Trudy's available conversation partners often did not respond to her. Both observers also recorded some of Trudy's idiosyncracies, such as: (a) stating the time incorrectly; (b) beginning interactions with questions that typically would have other antecedents (i.e., "What do you want now?" would be expected when someone new has entered a room or when the speaker had just performed a task for someone who appeared to be waiting for something else); and (c) repeating what others say.

The last final observations in Appendix G were conducted by the author and the second research assistant. Wendy was observed at the motel in the lunchroom during the follow-up phase. Several activity and location changes were made during the course of the observation. The observation began during the end of lunch, then Wendy went to the laundry room and spoke with an assistant teacher. Next, she went into the hallway to purchase a soda. At the end of the observation, Wendy had returned to the laundry room and was beginning to go to work. These observations provide another example of the differences and similarities across observers.

In summary, three types of interobserver reliability indexes were calculated for the study. Percent agreement on occurrence and nonoccurrence of behaviors was calculated during observer training. Kappa coefficients and Pearson correlations were calculated during the course of the study. The two measures were used together in order to provide maximal information about the interobserver reliability. The reliability was for the categories included in the study was adequate. Some individual subcategories have marginal reliability such as the "type of remark" category. When marginal categories are used in analysis and results, the reliability will be noted. Finally, the items that could be measured quantitatively were only a small sample of the salient features involved in the interactions. For this reason a variety of examples of observations were included in Appendix G to illustrate the specific similarities and differences in observation records.

Coding reliability. In addition to interobserver reliability, coding reliability was also calculated. Interobserver reliability assessed the accuracy of the observation record or the similarity between the IGOs of two independent observers. Coding reliability was conducted to determine the accuracy of the categorization of the IGOs or the similarity between two independent individuals categorizing the data. Coding reliability was conducted for 22% or 17 of 77 IGOs. A total of 1478 bids were coded for reliability. Each bid was coded for: (a) the activity (e.g., eating/drinking, shopping, looking at magazines); (b) the type of remark (e.g., opinion, question, statement of description); (c) the generalization of behaviors targeted for social skills training (i.e., greetings, expresses opinion, asks question, repeats and adds new information, termination); (d) the appropriateness of the bid or whether an error had occurred; (e) the type of error that occurred (e.g., eye contact, interrupting, not responding to partner); (f) whether or not the bid was a repetition of the partner's bid; (g) the speaker who initiated the topic of conversation; and (h) whether or not the remark indicated a change of topic.

Initially, the author and second graduate assistant completed intercoder reliability. Certain of the Kappa coefficients for "type of remark" categories and "repetitions" were not acceptable. When new definitions were completed, the second graduate assistant was not available for coding, so another graduate student in education was hired and trained in the definitions for those categories. The Kappas for "type of remark" and for "repetitions" are based on the second coder's analysis.

The Kappa Coefficients were used for calculating intercoder reliability. The formula for calculating Kappa was presented in the section entitled "interobserver reliability." The Kappa coefficients for categories ranged from .81 to .96. Kappa coefficients for subcategories ranged from .73 to 1.00. Individual intercoder Kappa are included in Appendix E.

A different type of reliability was calculated for "topic" because coders wrote a descriptive term for the topic in the margin of the coding forms whenever a "change of topic" or "end of interaction cycle" occurred in the observation. The list of both coder's categories is located in Appendix H. The percent of agreement was calculated by dividing the agreements between observers by the total of agreements and disagreements and multiplying by 100. The percent agreement for topics was 82%.

The results of the reliability analysis indicated that the data were reliable for the purpose of evaluating the generalization of social skills. Interobserver reliability indicated that the observers were accurate in recording the transcripts for most of the categories. There were some difficulties and some a priori categories were dropped from further analysis. The results of the coding reliability indicated that the categories for summarizing the data are useful and that the coding was accurate.

Instructional Data

Progress in instruction was assessed by recording student response to each instructional case or example. Performance during training and maintenance was recorded as being either correct before the prompt, correct after the prompt, incorrect before the prompt, or incorrect after the prompt. Performance during probes was evaluated by recording verbatim the student response and then coding the response as correct or incorrect. Probe and instructional data forms were presented in Chapter 3 (Figures 3.2 and 3.3).

Validity. The instructional cases and data sheets were reviewed by the first two teachers involved in the study and by the chair of the author's doctoral dissertation committee. The three reviewers stated that the instruments were valid for measuring progress in instruction and generalization to untrained stimulus examples.

Reliability. Reliability trials were scheduled approximately once a week for instructional data and once every fourth assessment for probe data. The author and two research assistants conducted the instruction and generalization probes. These individuals, one classroom teacher, and two assistant teachers collected reliability data. During reliability sessions, the instructor, student, and conversation partner were positioned as usual. One reliability observer was positioned so that they could observe instruction and the student, but not see the instructor's data sheet.

Reliability for instructional and probe data was calculated by dividing the number of agreements by the total number of agreements plus disagreements. Reliability during the Baseline Phase ranged from 75% to

100%, with an average reliability of 98%. The average reliability for Doris and Trudy's data during Baseline was 100%; average reliability for Wendy's data was 96%. Reliability data were collected for 29% of the probe sessions (38% of Doris's sessions, 21% of Trudy's sessions; and 23% of Wendy's sessions). Reliability per probe session ranged from 81 to 100%, with an average of 96%. Reliability for individual student's data on probe performance ranged from 94 to 96%.

Reliability data were collected for 28% of all of the instructional sessions (32% of Doris's sessions; 39% of Trudy's sessions; 19% and of Wendy's sessions). Data ranged from 70 to 100% for Doris and Trudy, and from 90 to 100% for Wendy. Average reliability per student ranged from 88 to 99% for an overall average reliability of 94%.

Procedural Reliability

Procedural reliability data were collected to establish the consistency of instructional program implementation. The author and two research assistants who had conducted training also collected procedural reliability data. The observer was positioned so that both the student and instructor were visible. The observer then recorded: (a) whether or not the stimulus had been presented correctly by the partner or instructor; (b) the latency for the student response; (c) whether or not the student responded; (d) whether or not the response was correct; (e) whether or not the instructor presented a prompt or an error correction; (f) the student's response following the prompt; and (g) whether or not the teacher delivered praise, feedback and/or another error correction. Procedural reliability was calculated by dividing the number of correct teacher responses by the total of correct responses and error responses and multiplying by 100.

Trials for observer reliability were scheduled more frequently during the beginning phases of training. Once reliability had been established, procedural reliability trials were scheduled for approximately every other week of instruction.

Procedural reliability trials were completed for 16% of the instructional sessions. Procedural reliability ranged from 80 to 100%, with an average procedural reliability of 96%. The average reliability for individual instructors were: 98%, 96%, and 90%. The average procedural reliability for each student participant were: 96% for Doris's; 98% for Trudy's; and 95% for Wendy's instructional sessions.

Selection of Instructional and Probe Cases

Skills were selected for instruction that would meet the needs of the students and that would be useful in future environments for the students. The first step in skill selection was preliminary interviews with the students' parents and teacher. During these interviews, respondents were asked to describe the student's strengths and weaknesses in social interactions and to predict the integrated environments that students would use following graduation. The students also were asked what environments they would enjoy using in the future. The following environments were selected: a) shopping mall; b) fast food restaurant; c) work; and d) park and recreation department programs.

The next step for selecting skills was to observe individuals interacting in these environments. The author and one research assistant conducted observations in the target generalization sites. Observations focused on women appearing to be about the same age as the participating students. Social behaviors that were observed to elicit responses from others in the environment were recorded.

The last step in selecting skills for instruction was to observe the students participating in integrated settings where the opportunity was available for unstructured social interaction. Doris was observed during lunch at the high school, waiting for the bus at school, at work in the motel, and during break at a sheltered workshop. Trudy was observed during lunch at the high school cafeteria, at work during break, using a fitness trail at a public park, and playing croquet at the high school. Wendy was observed during lunch at the high school and at work during break.

After the observations and interviews were completed, a list of skills for instruction and for topics of instruction was developed. (The skills are listed in Chapter 3 in Table 3.1.) A total of thirteen interviews were completed, two or three at each of five sites. The sites included: (a) the motel where and Wendy were receiving vocational instruction; (b) the hotel where Doris was receiving vocational instruction; (c) fast food restaurants; (d) shopping mall; and (e) parks and recreation activities. (The majority of participants in the parks and recreation program were disabled. This site was included even though the research question focused on integrated environments because it was expected that Doris would participate in the program.)

Consumer interviews. The skills selected for instruction were then validated in two ways. First, interviews were conducted with consumers of the target environments. Two consumers, one for fast food and one for shopping malls, who were naive to the purpose of the study were interviewed about the importance of the skills selected for instruction in those two environments. A work supervisor, the parks and recreation program supervisor, and a co-worker were interviewed to validate the skills for the work environments and the recreation environments. The interview respondents confirmed that all of the skills, conversation topics, and collateral behaviors were important for social interactions, relevant to the target environments, and appropriate for discussion.

Rating of student performance of skills. As a final step in validation of the skills for instruction, the students' parents and teacher rated the importance of the skills for instruction on a four-point scale. The importance of the skills selected for instruction could be rated as: 1) Not at all important; 2) Useful, but not important; 3) Important; and 4) Essential. None of the skills were rated as "not important." Sixty-eight per cent of the skills received an average rating between "useful" and "important." The remaining 32% received a rating between "important" and "essential".

The classroom teacher and parents were also asked to rate the student performance of the skills for instruction before instruction began. They were asked to rate student performance of the skills again after training. The student's performance of each skill was rated on a five point scale: 1) Does not perform the skill; 2) Performs the skill, but with mistakes; 3) Performs the skill correctly some of the time; 4) Performs the skill correctly about half of the time; 5) Performs the skill correctly most of the time.

A test-retest procedure was completed to insure that the ratings on both the importance of the skills and student performance of the skills were reliable. One research assistant and the first classroom teacher completed the rating twice within one week. The average reliability for the importance of the skill was 83%; for performance of the skill was 40%; and overall was 62%. Test-retest reliability was also computed for answers within one rating point. The average reliability within one point for importance was 100%; for performance was 86%; and overall was 94%.

Results of Instructional Program

The study employed a multiple-baseline design across skills for each student and across students. In this section, each individual student's data will be discussed followed by the conglomerate data for all three students. Social validation data are presented in the section following performance data.

Doris

Baseline. Baseline measurement was completed for all three students prior to beginning instruction. The students were presented with four to eight examples of stimulus for each of the 15 skills selected for instruction during baseline assessment. The results of the baseline assessment for all of the skills are presented in Table 4.8. Doris performed 10 of the 15

Table 4.8

Student Baseline Performance on Stimulus Examples for Skills Selected for Instruction

Skills Selected for Instruction	Doris Trials			Trudy Trials			Wendy Trials			
	1	2	3	1	2	3	1	2	3	4
Initiates with peers on break, not working	0%	0	0	0	0	0	0	0	0	
Initiates with known individuals, not strangers	0	0	0	0	0	0	0	0	0	
Initiates when others in group are not talking	0	0	0	0	0	0	0	0	0	
Expresses opinon	12	12	12	50	50	37	50	63	75	63
Asks questions	0	0	0	62	100	37	100	87	75	
Repeats statement and adds new information	0	0	0	12	12	0	12	50	12	12
Returns greeting and extends interaction	0	12	0	12	0	0	37	50	75	37

(table continues)

Table 4.8 (cont.)

Skills Selected for Instruction	Doris Trials			Trudy Trials			Wendy Trials			
	1	2	3	1	2	3	1	2	3	4
Answers question and extends interaction	12	38	12	37	37	12	75	25	50	63
Extends question with extension statements	0	0	0	12	12	37	87	100	100	
Responds to termination	20	0	20	20	100	100	80	80	100	
Initiates termination	0	0	0	0	66	0	0	0	0	
Combines skills to continue conversations for four turns	0	0	0	0	0	0	37	12	12	
Uses manners	0	0	0	25	0	0	0	25	25	
Introductions	0	0	0	0	0	0	50	0	0	
Provides directions	57	14	29	71	29	29	57	57	29	

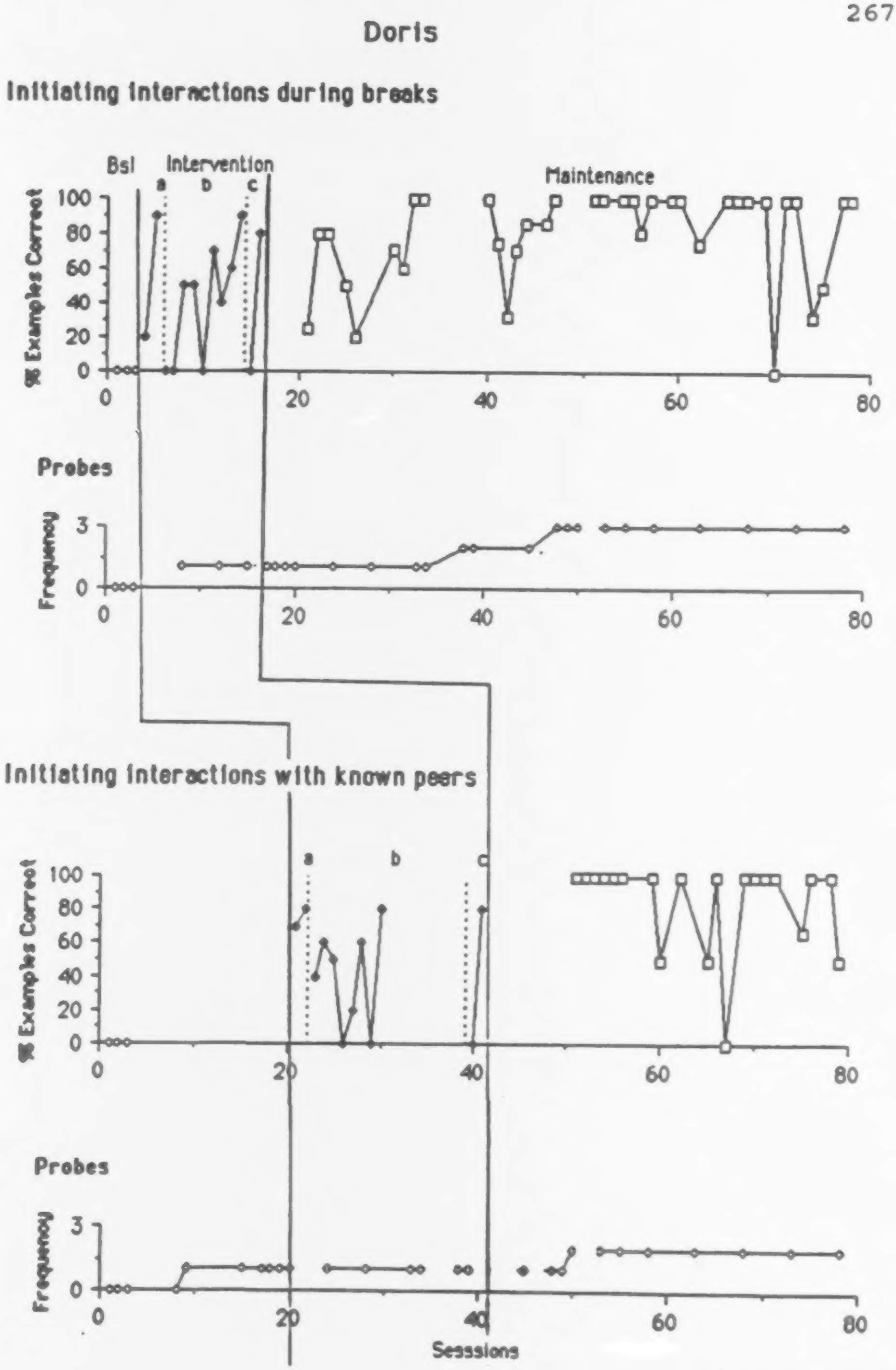
skills at a level of 0%. She demonstrated a stable low rate of performance on four of the skills and moderate to low performance on the skill of "provides directions."

Instruction. Intervention was begun first with Doris because her teacher felt she had the greatest need for instruction of the three students and because she would be graduating at the end of the school year. Doris was instructed in two initiating skills (i.e., "initiating interactions during breaks and not during work" and "initiating interactions with known peers"), and two extension class skills (i.e., "expressing opinions" and "asking questions"). As the program progressed, it became clear that Doris would not be able to complete all of the skills in the program before graduation. Thus, some modifications to the target skills were made. At that time (approximately the 40th session) "Initiating interactions without interrupting" was dropped from Doris's program. In discussion with the classroom teacher and the teacher's supervisor, it was agreed that Doris did not have a problem with interrupting others, and that instruction in extension skills would be most beneficial to her. Instruction on the final skill was not completed due to time limitations of the study.

Doris was sometimes hesitant about participating in instruction. Doris appeared to be motivated by having some choice and control in the program. Therefore, Doris was given a choice of where to work, one of two tables in the classroom or an office not in use during the instructional time. After the third instructional session, she controlled the fluid line on the representational cup. Doris would hold the replica, moving the fluid up one increment following each correct response. Finally, Doris would respond negatively when the instructor would initiate training (e.g., "Come work now."), but would respond favorably when the decision was hers (e.g., "Let me know when it is time to work.").

Data on Doris's performance is illustrated in Figure 4.1. The horizontal axis is proportional to days that sessions could have been implemented. Breaks in data indicate interruptions in instruction. The first break indicates an illness that caused Doris to miss a week of school. The second break indicates spring vacation.

Doris mastered "initiating interactions during breaks" in 13 trials across three phases: (a) identifying that one does not interact when others are working; (b) greeting others when on break; and (c) differentiating when others are on break or working. Phase B, "greeting others when on break," required the most instructional sessions for mastery. In this phase, Doris was prompted to use a different greeting for each stimulus, while during Phase A she had been prompted to say "Nothing, __pronoun__ is/are working" for each stimulus. Phase B may have been more difficult to master due to the complexity of responding. Maintenance of the skill "initiating interactions during breaks" was variable at


Doris

Initiating interactions during breaks

Probes

Initiating interactions with known peers

Probes

(figure continues)

Figure 4.1. Chart illustrating Doris's performance on social skills instructional program in a multiple-baseline across skills.

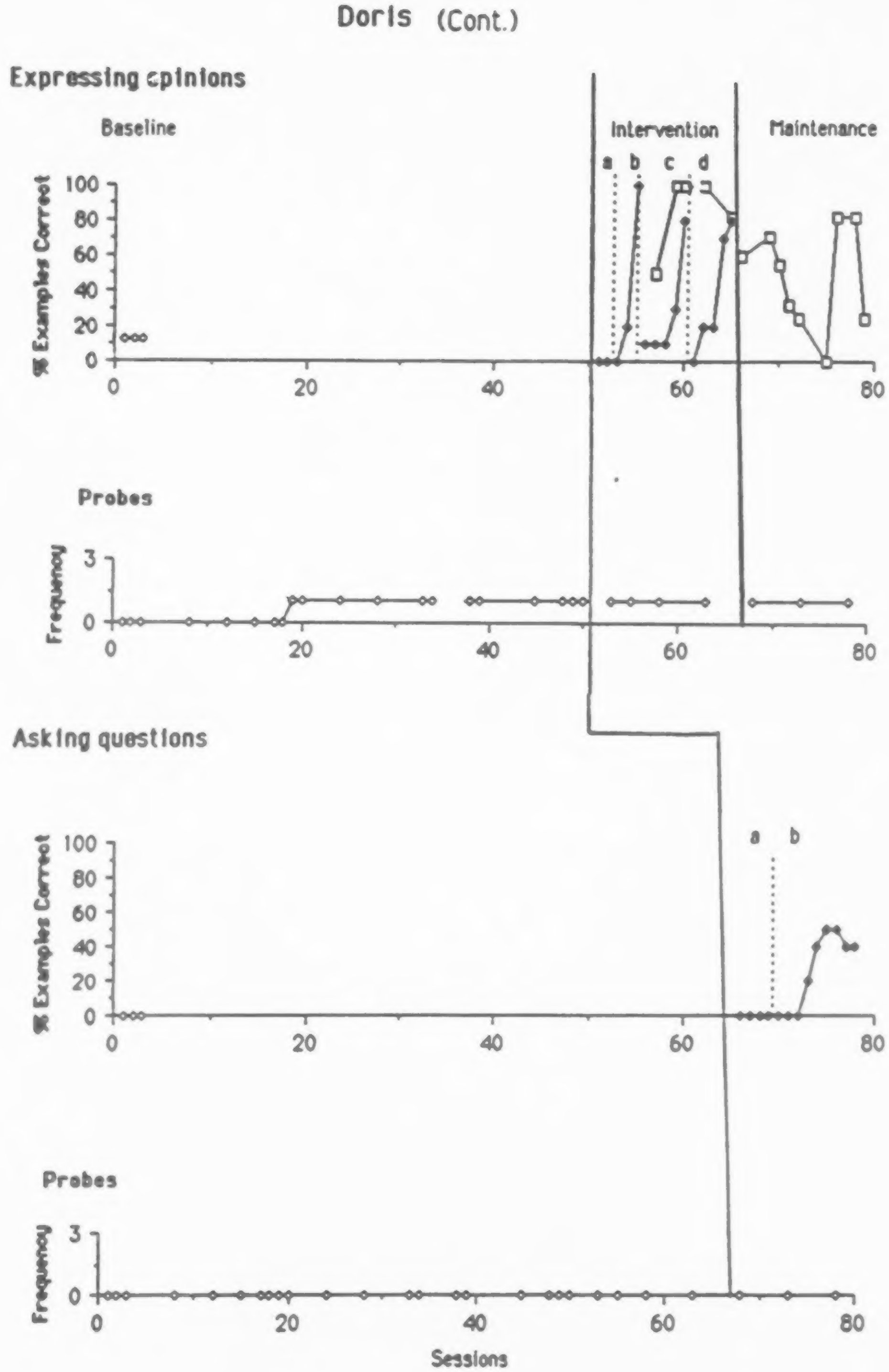


Figure 4.1. (cont.)

first, becoming stable between sessions 40 and 60, then becoming more variable near the end of the school year.

Doris required 12 trials to master the skill of "initiating interactions with known peers." The pattern across phases was similar to the other initiation skill. An analysis of Doris's errors indicated that her most common error was to respond "I don't know" or "I can't remember" before the prompt. This was occurring during both maintenance and instructional trials. Doris also appeared to be attempting to memorize the prompt in association with each stimulus, so that the greeting "How are you?" could only be used with the picture for which it was an example. Due to the errors, the program was changed slightly at the end of the second phase. Doris could not move the marker on the "cup" if she initially responded "I don't know" or "I can't remember" before the prompt. Feedback was stated in a way to indicate that any greeting would have been appropriate (e.g., "That's right, you know Dave so you greeted him. Any greeting is okay." instead of "That's right, you know Dave, so you could say "How are you?"). Maintenance was initially stable at a high rate of performance, becoming more variable near the end of training.

Expressing opinions was taught in four phases. During the first phase, Doris was prompted to respond to 10 questions designed to elicit opinions. When Doris did not make progress, the program was adapted. In the second phase, Doris was instructed to respond to five questions (each question was presented twice for a total of 10 trials). She also participated in a "practice" session prior to the instructional session with the conversation partner. During the practice session, Doris would be prompted to state the opinions in a one-to-one situation with the instructor. The practice sessions were discontinued once Doris began to respond to prompts during instruction. This occurred after the second practice session. The questions and prompts were selected or changed to reflect Doris's actual opinions. During the third phase, Doris was prompted to state opinions that showed agreement with a partner's opinion. The final phase in "expressing opinions" was to state a disagreement with a partner's opinion.

Doris mastered the three phases of the "expressing opinions" skill in four sessions each. Performance during the maintenance of Phase B, "responding to questions," and C, "agreeing with other's opinion," skills tended to be high and stable. Maintenance became variable following Phase D, "disagreeing with other's opinion."

The final skill for Doris's instruction was "asking questions". Instruction in this skill was not completed by the end of the school year. Doris had not mastered the skill after 14 sessions. The practice session before instruction with the conversation partner was used for one session. Instruction for this skill was modified for Doris. Doris had difficulty saying all of the words in the prompted responses (e.g., "What kind of music do you like?") so correct was defined as "three key words with a question inflection".

The program was also modified in two ways during the first phase. First, the program was simplified. Doris was instructed on five cases instead of 10 cases. Secondly, Doris was given two opportunities to receive reinforcement. If she had not responded correctly after the first prompt, she was given a second prompt. If Doris responded correctly after the second prompt, she was praised and was able to move the soda marker up on her cup. When Doris began responding correctly after the first prompt, instruction was given on 10 questions rather than five questions. This is indicated as Phase B on the chart (Figure 4.1). She did show moderate improvement during the second phase.

Doris's data indicated that the modified general case instructional program was effective in increasing correct responding to instructional examples. Maintenance tended to be variable during the latter stages of instruction. Maintenance sessions were above the instructional criteria of 80% for "initiating interactions during breaks" 71% of the sessions, for "initiating interactions with known peers" 75% of the sessions, and for "expressing opinions" 67% of the sessions. Overall maintenance trials were over the 80% criterion on 67% of the sessions.

Generalization probes. Generalization to untrained examples or cases is illustrated on the charts labelled "Probes" in Figure 4.1. Data represent cumulative frequency as generalization to a new example can occur only one time. The three cases used for each skill were taken from the baseline cases to which the student had not correctly responded. One example of each skill selected for instruction was provided in each probe. One of three probes was presented weekly.

Doris demonstrated generalization to all three cases of "initiating interactions during breaks," and to two examples of "initiating interactions with known peers". Doris did not show generalization for "expressing opinions" or for "asking questions." In two cases, Doris had improved her baseline score before the instruction phase. In the first case of "initiating interactions with known peers," it may have been a generalization from "initiating interactions during breaks." The stimuli (pictures of known individuals available for interaction) and responses (any greeting) were similar. In the case of "expressing opinions," Doris had indicated some ability to use the skill during Baseline. Generalization did not occur before some competency at the skill having been demonstrated in baseline or during interventions. Generalization continued to improve during the maintenance phase.

Response generalization refers to student use of novel phrases or statements to respond to the probe stimulus. In the initiation class, Doris responded with four different greeting statements. Two responses were trained responses (i.e., "Good afternoon." and "How are your doing?"). The other two initiation responses were not used for instruction. These were "What's up?" and "Hi." Doris used "Hi" for the first time in a Probe after the 48th session. This was the only response she used for initiation examples on probes for the rest of the study. Doris used "Hi" on eight more probes.

Doris also exhibited some response generalization in the "expressing opinions" extension skill. All of the generalization statements were made in response to the same probe item: "partner points to picture in magazine and says 'I like that ' name of item '. Doris answered the item with four novel responses: a) "No, I like this;" b) "I don't like it'" c) "I like these shoes;" and d) "I like them, too." As these statements may have already been in the student's repertoire, one cannot state absolutely that the program was the cause of response generalization. However, compared to Doris's baseline performance, one may conclude that Doris did increase variety and frequency of responding to the instructional stimuli during the instructional phase.

Interaction generalization observations. Generalization to unstructured leisure environments was also assessed. The production of skills selected for instruction was evaluated for student responses that were similar to training response cases. The IGO data are presented as rate data because the number of IGOs across phases was not stable. The rate for "greeting others" was calculated by dividing the frequency of appropriate initiations by the sum of the opportunities for interactions (e.g., a new person entering the observation setting) and initiation errors. The rates of "expressing opinions" and "asking questions" are the rate per observation.

The rate of social skill generalization is presented in Table 4.9 for each student. The data are presented across five phases: (a) Baseline (i.e., before instruction began); (b) Intervention (i.e., during intervention of that skill); (c) Post-intervention (i.e., instruction continuing on other skills); (d) Follow-up 1 (i.e., three to four months following instruction) and (e) Intervention 2 or Follow-up 2 (i.e., six to seven months following instruction). Doris's data did not demonstrate a pattern of generalization. The rate of "greeting

Table 4.9

Rate of Performance of Social Skills During Interaction Generalization Observations

Doris

Skill	Base.	Inter.	Post- Inter.	Fol-up 1	Inter. 2
Initiating interactions	.25	.00	.75	.00	.11
	(n=4)[a]	(n=0)	(n=12)	(n=1)	(n=9)
Expressing opinions	.75	.00	.44	.86	.67
	(n=4)[b]	(n=1)	(n=9)	(n=7)	(n=6)
Asking questions	.00	.33	.33	.00	.17
	(n=5)[b]	(n=6)	(n=0)	(n=7)	(n=6)

Trudy

Skill	Base.	Inter.	Post- Inter.	Fol-up 1	Fol-up 2
Intiating Interactions	.43	--	.20	.12	.25
	(n=7)[a]	(n=0)	(n=10)	(n=8)	(n=4)
Expressing Opinions	.83	.67	2.00	1.62	1.57
	(n=6)[b]	(n=3)	(n=2)	(n=8)	(n=7)

(table continues)

Wendy

Skill	Base.	Inter.	Post-Inter.	Follow-up
Initiating interactions	.50	.80	--	.83
	(n=6)[a]	(n=5)	(n=0)	(n=7)
Expressing Opinions	2.44	.00	6.00	2.85
	(n=9)[b]	(n=1)	(n=1)	(n=7)
Repeating and adding new information	.33	1.00	--	.29
	(n=9)[b]	(n=1)	(n=0)	(n=7)
Initiating terminations	.17	--	--	.00
	(n=12)[b]	(n=0)	(n=0)	(n=7)

[a] n = the number of opportunities to greet plus the initiation errors.

[b] n = the number of IGOs completed in that phase.

others" increased during the Post-intervention Phase, but decreased during the follow-up phases. All of the initiations that were observed consisted of one or two words (e.g., "Hi," or "Hi, Joyce"). None of the training examples designed to elicit a response from peers were observed.

The rate of "expressing opinions" was greatest during Baseline and Follow-up 1. Doris's responses for "expressing opinions" were more varied than the "initiating interactions" category. During the Baseline Phase, she initiated opinions about liking music and about an article of clothing. Additionally, she responded to a question for opinion about swimming. She continued to initiate opinions about music during Intervention and Follow-up Phases. Also, she used responses about being funny, wanting a job, food, and articles in shopping settings. She also responded to questions and agreed and disagreed with conversation partners' opinions on reading matter.

The rate of "asking questions" showed a moderate increase during the Intervention and Post-intervention Phases. She asked four questions during the observations: two were about what was funny when workshop co-workers were laughing, and two were phrases with question inflections (e.g., "You see it?").

Trudy

Baseline. Trudy demonstrated some ability to perform 10 of the 15 skills selected for instruction. (See Table 4.8). She performed above criterion for mastery on two skills, "asking questions" and "responding to terminations." She demonstrated 0% levels of performance on the three initiation skills, "combining skills to continue a conversation for four turns," and "making introductions." On the remaining skills, she demonstrated a low to moderate level of performance.

Instruction. Individuals involved in Trudy's school program felt that instruction in all three of the initiation skills was important for Trudy. Therefore, instruction proceeded in order (see Table 3.1) through the skills except that "asking questions" was omitted because of Trudy's Baseline performance. "Expressing opinions" was included despite the baseline performance in order to increase Trudy's ability to express opinions about a broader variety of topics. Therefore, Trudy received instruction in "initiating interactions during break," "initiating interactions with known persons," "initiating when others are not speaking," and "expressing opinions." Instruction was discontinued at the end of the school year.

As with Doris, some adaptations were made to Trudy's program to meet her individual needs. Trudy's instruction was conducted prior to her breaktime in the laundry room at the motel where she received vocational instruction. An initial attempt was made to teach Trudy to control the "fluid line" on the drawing of the cup as Doris had done, but she did not show any interest. So the instructor provided reinforcement or feedback and moved the "fluid line" for Trudy.

Reinforcement also differed between Trudy's and Doris's program. Coffee was very important to Trudy and she discussed it often during the day and would sometimes refuse to work until given coffee. Therefore, after instruction on the first skill, Trudy's work supervisor requested that coffee not be used as a reinforcer. For the remaining sessions, Trudy got her coffee prior to instruction and sipped it throughout the session. Available contingent reinforcers included verbal praise, verbal feedback, and conversation partner response. A final difference in the programs was that Trudy was instructed in 10 cases of "expressing opinions" during one probe session, while Doris had been instructed on five cases.

Trudy's data are summarized in Figure 4.2. The breaks in data represent two times when Trudy missed approximately a week of school, the first absence followed a seizure and the second absence was due to a sprained ankle. Trudy mastered the three initiation skills in 11, 8, and 10 trials respectively. Instruction on the third skill was interrupted by an extended absence. Trudy, unlike Doris, mastered both the rules phase (e.g., "Say more sessions than Doris for the third phase where the nothing because she's a stranger") and the greeting phase (e.g., "How are you?") at the same rate. Trudy required stimuli were combined. Trudy's performance on "expressing opinions" was decelerating at the end of the school year.

Trudy's data indicate that the modified general case program was successful for improving student performance

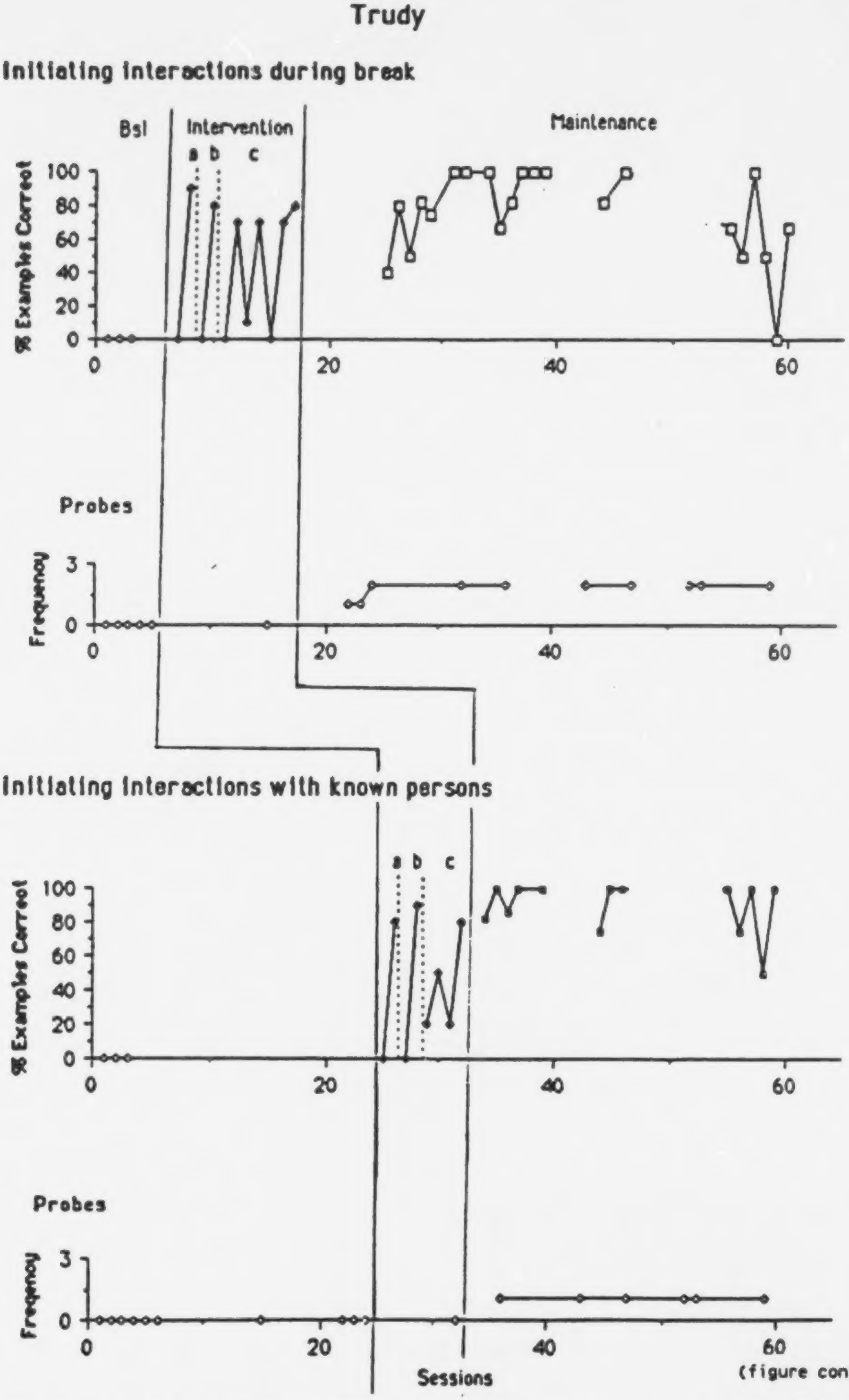
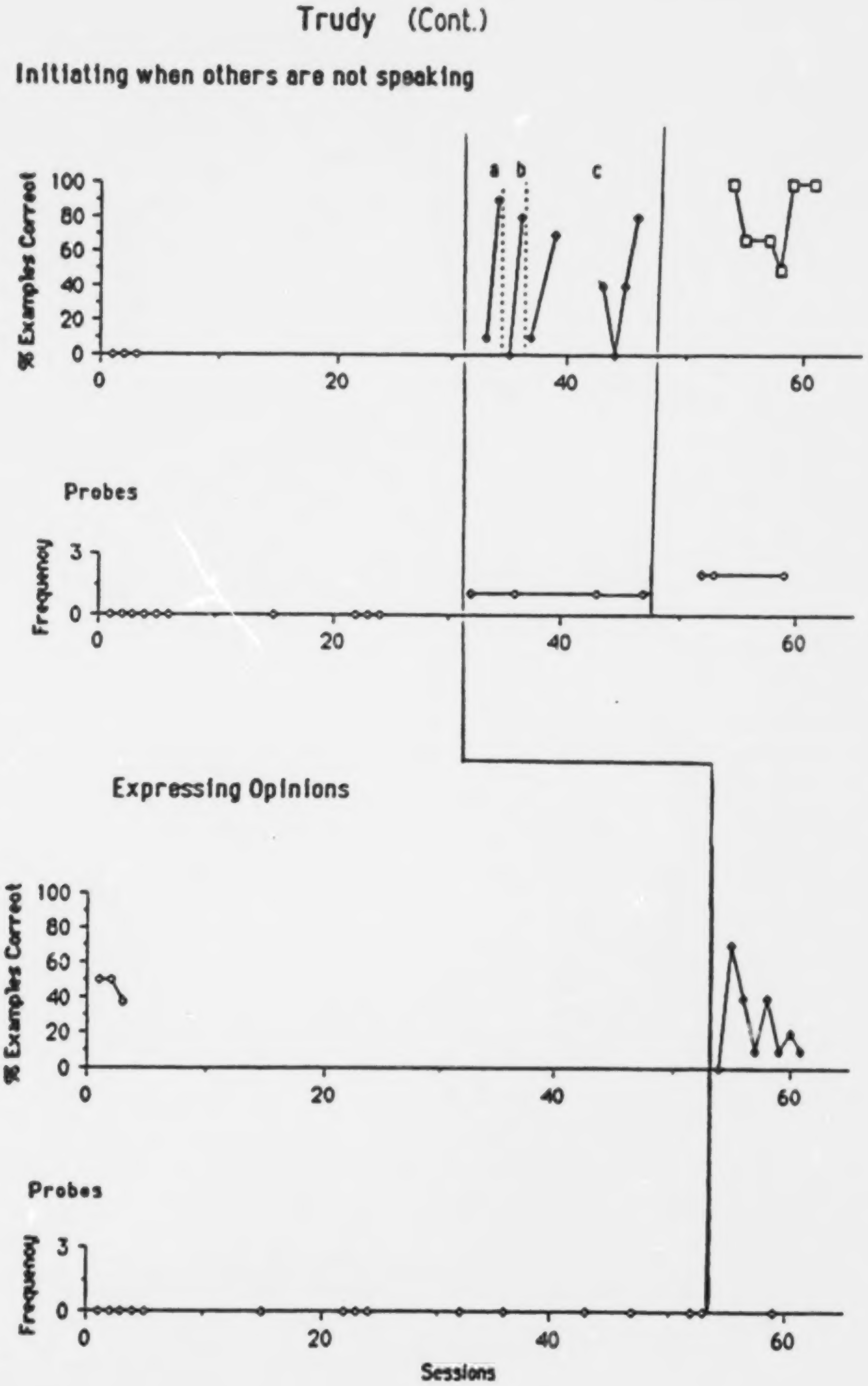


Figure 4.2. Trudy's performance of social skills under instructional and probe conditions. Performance is displayed across skills.



Trudy (Cont.)

Initiating when others are not speaking

Probes

Expressing Opinions

Probes

Figure 4.2. (cont.)

of initiation skills in response to the examples. Trudy's maintenance performance paralleled Doris's in that it tended to be high and stable early in the maintenance phase. The data became variable near the end of instruction. Maintenance performance was above criterion for each initiating skill on 57%, 77%, and 50% of the sessions respectively. The average across skills was 63%.

Generalization probes. The cumulative frequency of generalization to novel stimuli is illustrated in Figure 4.2 on the "Probes" charts. Trudy generalized to two new cases of "initiating interactions during break", to one example of "initiating interactions with known persons, and to two examples of "initiating when others are not speaking." No generalization was demonstrated for "expressing opinions." Generalization did not occur until the maintenance phase for the first two skills, but occurred during the instructional phase for the third skill.

Trudy used the same response for generalization probes. Her greeting was, "Hi, what's up?" She had been instructed to use "Hey, what's up?" with a handshake for one skill. Trudy's response was an adaptation of the instructional response.

Interaction Generalization Observation. Trudy's rate of performance of the skills selected for instruction in IGO sessions is displayed in Table 4.9. The rate of "initiating interactions" was calculated by dividing the number of appropriate greetings by the sum of the number of opportunities to greet someone during the observations and the errors made in using initiations (e.g., interrupting). The rate of performance for "expressing opinions" was calculated by dividing the number of times the skill occurred by the number of IGOs conducted in that phase.

Trudy's performance of "initiating interactions" ranged from .12 to .43 across phases of the study. The highest rate of performance occurred during Baseline. Trudy appeared to use the skill of "expressing opinions" more frequently during the Post-intervention and Follow-up Phases than in the Baseline and Intervention Phases. Trudy had been instructed in the skill of "expressing opinions" in order to increase her ability to discuss different topics. All the opinions expressed during Baseline and Intervention were about coffee. In the post-intervention phase, she discussed the following topics on which she had been instructed: (a) graduation; (b) clothing; (c) television; (d) work; and (e) food. The responses were not those that were taught in the instrucitonal examples, but her responses express opinions about topics that had been taught. Additional topics discussed included: (a) preceding evening; (b) hair; (c) weather; (d) school; (e) going out; and (f) coffee.

Wendy

Baseline. Wendy demonstrated more abilities and more variable performance on baseline than the other two students, as shown in Table 4.9. She had scores at mastery or greater on three skills: "expressing opinions," "extending question interactions," and "responding to terminations." She demonstrated 0% levels on four skills and moderate levels of performance on the remaining seven skills.

Instruction. Wendy was instructed in six skills. Three of the skills were for initiating conversations: (a) when others were at break; (b) with known peers; and (c) without interrupting. The extension skill of "repeating and adding new information" was selected because it was the only skill on which Wendy had not demonstrated mastery during Baseline and had not gotten correct on generalization probes. "Expressing opinions" was included because teachers and supervisors requested the instruction to broaden Wendy's repertoire of topics. "Initiating terminations" was also included for instruction.

Wendy received individualized reinforcement. The representation of the cup filling with liquid was not used for Wendy's instruction. Praise, feedback, and partner response appeared to be sufficient, except for "initiating terminations." For this skill an error analysis indicated that Wendy was not differentiating between prompted and unprompted corrects. A program change was made and Wendy was handed a token for each unprompted correct and told that a luncheon outing with project staff would be scheduled when she earned at least eight tokens in one session.

Wendy's performance is illustrated in Figure 4.3. There were two breaks in instruction for Wendy. One occurred after the 44th session when Wendy had her tonsils removed. The other break, after the 70th session, represents summer vacation.

Wendy mastered the first two initiating skills quickly. She needed two sessions on each phase for the first skill. On the next skill, "initiating with known peers," the phase for just greeting others on break was skipped. Wendy mastered the first phase, "not initiating with others who are working" in two sessions and needed four sessions to then complete the skill, "discriminating between others working or not working to initiate an interaction." Wendy required slightly more practice for the final phase of "initiating without interrupting" than she needed to master the other two initiating skills. Maintenance was generally high and stable with one dip in performance before the tonsillectomy. Performance became more variable at the end of the school year. The amount of variability during the next school year was different

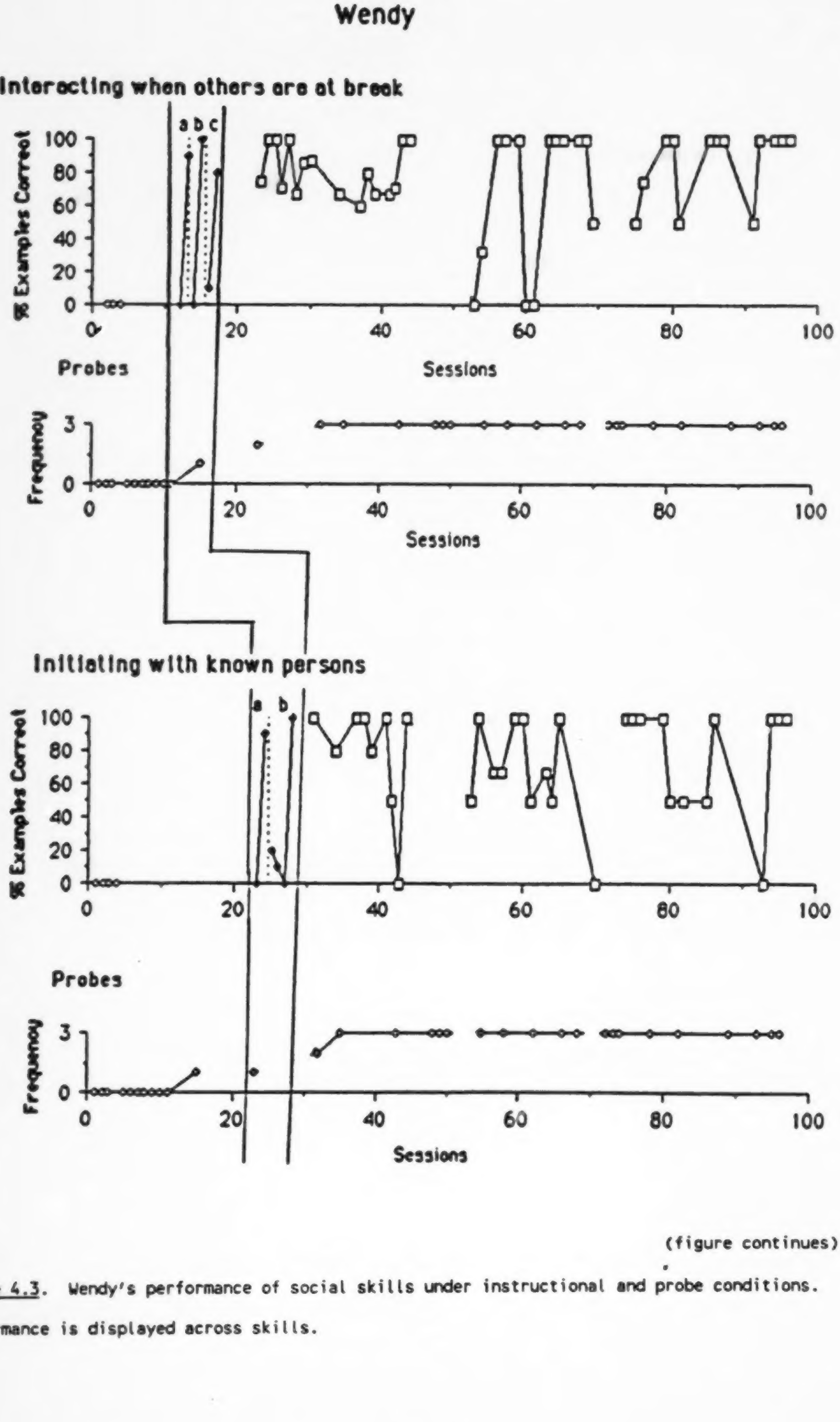


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Figure 4.3. Wendy's performance of social skills under instructional and probe conditions. Performance is displayed across skills.

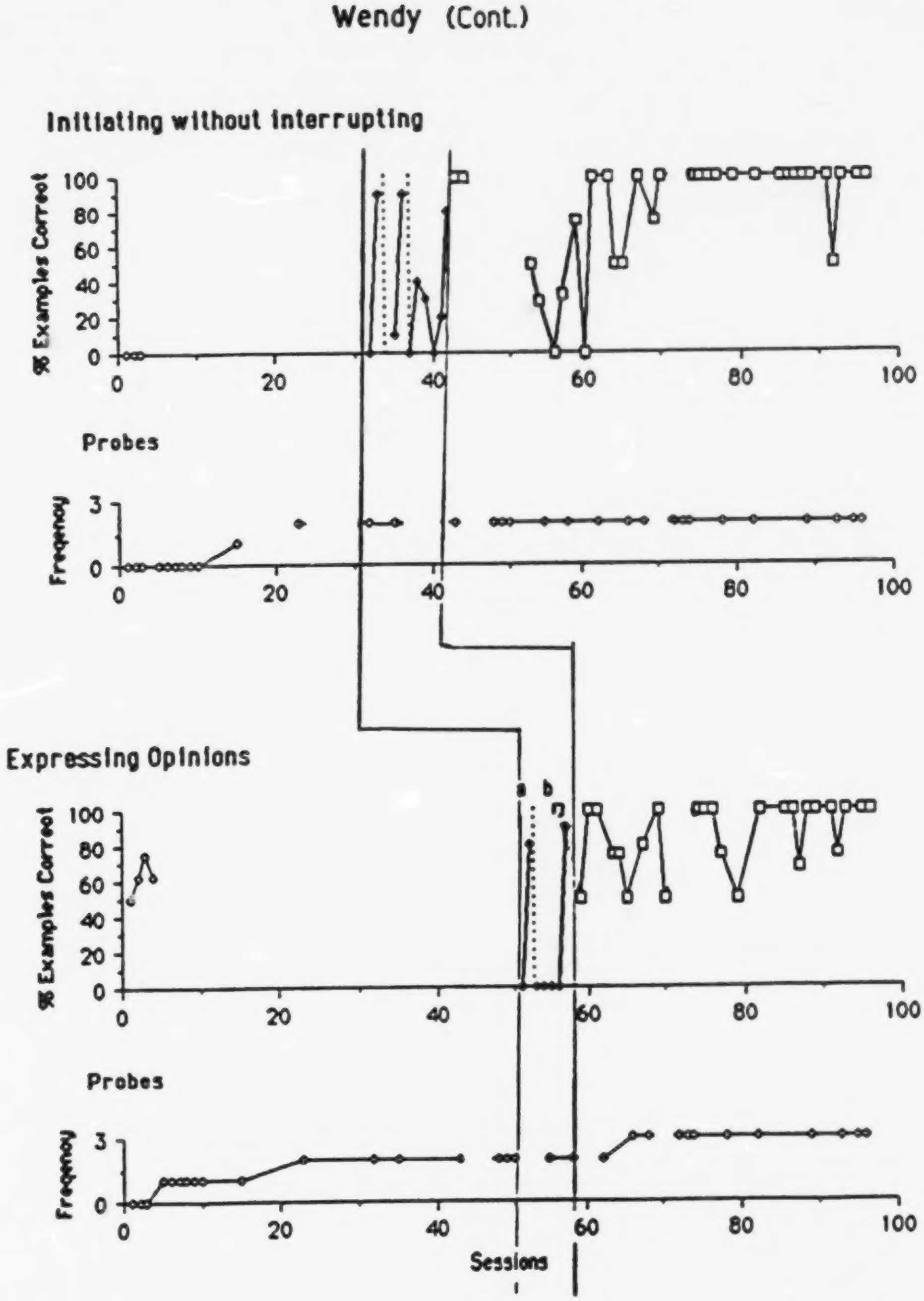

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Figure 4.3. (cont.)

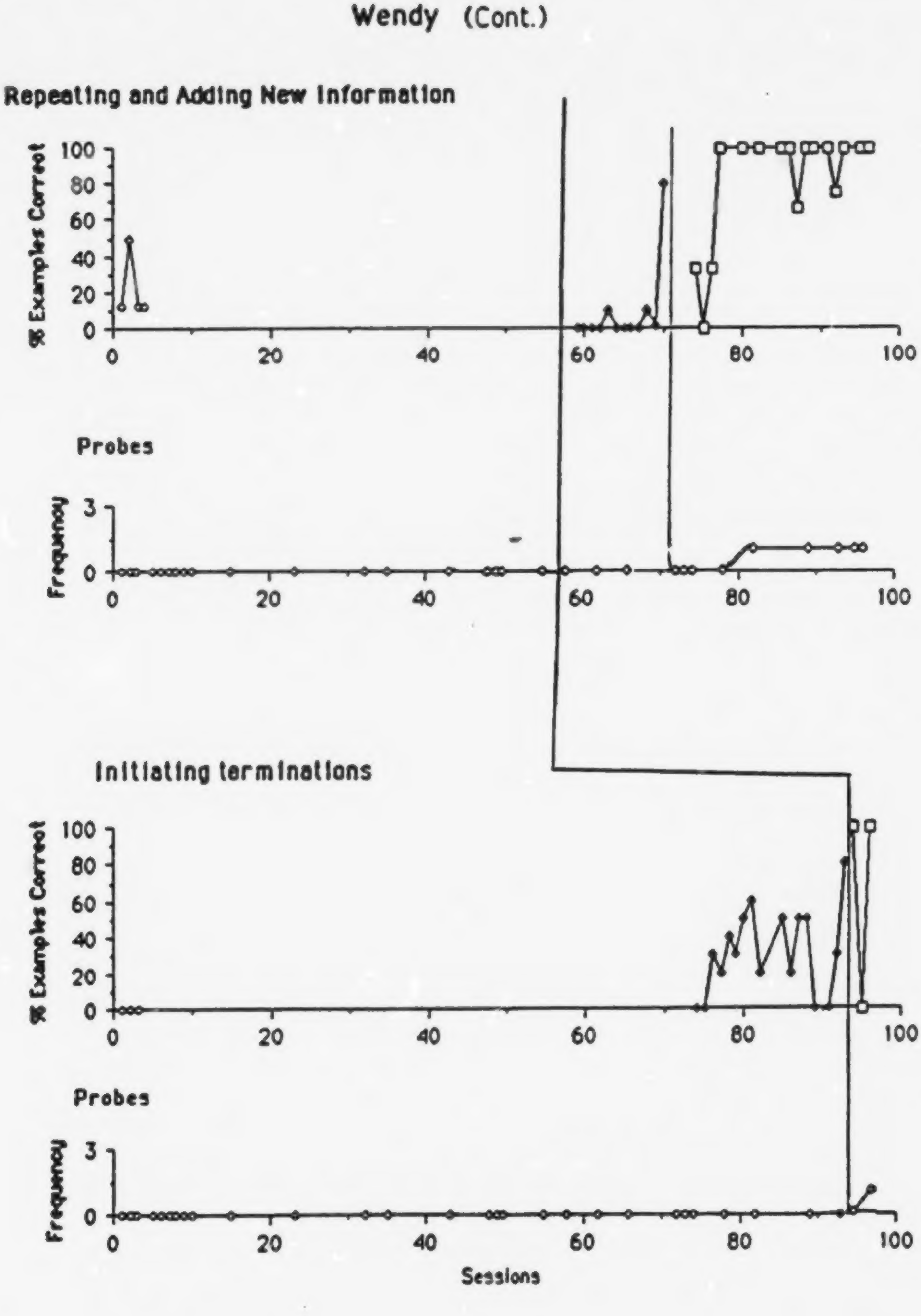

Figure 4.3. (cont.)

for the individual skills. Wendy's performance was above mastery on 60%, 60%, and 68% of the maintenance trials for the individual initiating skills.

Wendy successfully mastered two skills to extend interactions. She was instructed to answer 10 questions of opinion in complete sentences during Phase A of "expressing opinions." During Phase B, she mastered five examples of "agreeing with partner's opinion" and five examples of "disagreeing with partner's opinion" in five sessions. Wendy mastered the second expansion skill, "repeating and adding new information," in 10 sessions. Maintenance on "expressing opinions" was moderate to high, with 64% of the sessions being above mastery level. Maintenance for "repeating and adding" showed a different pattern, low at first and changing to high and stable. Sixty-nine per cent of the trials were above mastery.

The skill for "initiating termination" required 17 sessions for mastery. Wendy needed only three sessions after the additional cue of a token for unprompted correct responses was added to the program. She was presented with only one example during each maintenance session and responded correctly in the two opportunities provided in the maintenance phase. The average number of trials above mastery level for all of the skills was 63%.

The program appeared to be effective in teaching Wendy to respond appropriately to stimuli cases for three initiation skills, two extending skills, and one termination skill. The number of sessions necessary for mastery varied from skill to skill as did patterns of maintenance.

Generalization probes. Wendy's performance on generalization probes is illustrated in Figure 4.3. Wendy performed correctly on three of the all three untrained cases for "initiating when others are at break," for all three untrained cases for "initiating with known persons," and for two of three cases of "initiating without interrupting." All generalization occurred after training had begun on the first initiation skill. Complete generalization did not occur until the maintenance phase.

Wendy performed correctly on two of the probes before instruction began for "expressing opinions." Wendy achieved one session of mastery of the skill during Baseline and was instructed in the skill for the purpose of broadening her repertoire of topics rather than mastery of the skill. Wendy generalized to the third case for "expressing opinions" during the maintenance phase. Wendy demonstrated generalization for the last two skills (i.e., "repeating and adding new information" and "initiating terminations") during the maintenance phases.

The results from Wendy's generalization data indicated that instruction may improve correct responding to untrained cases when the Baseline level of performance is below mastery. When higher levels of performance are present during Baseline, instruction may not be necessary to demonstrate generalization.

Wendy also demonstrated a greater level of response generalization than the other students. Wendy responded with three different novel greetings during generalization probes. These were: "Hi, name ," "Hi, how are you?" and "Hi, name , how are you?" Similarly to the way Doris had responded, Wendy had used the all three greetings on the first four probes to which she responded correctly. She then used the "Hi, name , how are you?" greeting for all further probe responses.

Wendy used six novel responses to reply to stimuli to elicit opinion statements. The most common responses were: "I like object " or "I like object , too." She also responded with "Me too, it's neat," "I like that dress, too. It's a pregnant woman," "Relax? I like to relax after school, too." She responded once to a probe item, using a novel "repeating and adding" structure and used one novel response for "initiating terminations."

Interaction Generalization Observations

The phases of Wendy's program differed from Doris's and Trudy's phases because Wendy did not graduate after the first year of intervention. The Intervention Phase extended over an additional school year. The Follow-up Phase represents the first two months immediately following instruction. The data for generalization by phase is located in Table 4.9. The rate of greeting responses increased slightly during the Intervention and Follow-up Phases. The rate of performance appeared to be stable across phases for the other three skills. There were outlying data for both the skills of "expressing opinions" and "repeating and adding new information." "Expressing opinions" showed an increase in the Post-intervention Phase and "repeating and adding new information" showed an increase during the Intervention Phase. Cautious interpretation of these data points is advised because the results were based on only one observation. The skill of "initiating termination" could have been effected by the nature of the observation format. Observations usually began in the middle of an event (e.g., break, lunch) and were completed before the termination of the event. Thus, Wendy had limited opportunity to demonstrate the skill of "initiating terminations."

The majority of Wendy's initiations were demonstrated during the Baseline Phase. These were: (a) "Hello" or "Hi, ___name___;" (b) "Hi, _name_, how are you?" and (c)" Name_, what's up?" During Intervention and the following phases, Wendy added "guess what" to her initiation repertoire. This was not a trained response.

Wendy demonstrated a change in the topics of opinions she expressed across phases. During Baseline, she stated 22 opinions about nine topics. The most common topics were: (a) liking clothing or appearance of her conversation partner (e.g., "I like your shirt) (8 or 36%); and (b) being a nice, pretty, or nasty day (5 or 23%). During the Intervention Phase, Wendy express fewer opinions (6) about fewer topics (4). However, she did not express opinions about the weather or liking appearance and she added two new topics. During the final Baseline Phase, Wendy expressed opinions about 10 topics. Five of the topics were from previous phases and five of the topics had not been observed prior to that phase. Additionally, Wendy's use of topics was distributed more evenly across observations. The highest frequency of one topic was four (19%).

Performance Across Students

Probe data. The modified general case and time delay procedure was effective for instructing Doris in three skills, Trudy in three skills, and Wendy in six skills. All three students demonstrated variable performance during some maintenance sessions. The students tended to demonstrate maintenance at the mastery level on approximately one half to two thirds of the opportunities provided.

Generalization was not demonstrated until instruction had begun on that skill or a similar skill. Wendy's performance on "expressing opinions" was an exception, however, she had attained 80% on one of the baseline trials. Partial generalization or complete generalization was demonstrated on 12 of the 14 skills that were instructed to the three students. Complete generalization was demonstrated on four skills (i.e., one skill for Doris and three skills for Wendy). In most cases, nine of 14, generalization continued to increase during the maintenance phase.

Figure 4.4 illustrates performance on probes for the three students. For each student, the top chart indicates performance on the probe cases for skills selected for instruction. The lower chart indicates performance on probe cases for skills that were not instructed. Doris was probed on all 15 skills, four of which were selected for instruction. Doris demonstrated partial generalization (i.e., a correct response to one or two of the probe cases) on all four of the skills that were taught. She demonstrated complete generalization on one skill (25% of the skills). Performance on probe cases improved after instruction began. There was a similar increase in skills that had not been included for training. Doris showed partial generalization to five (69%) of the other skills and showed complete

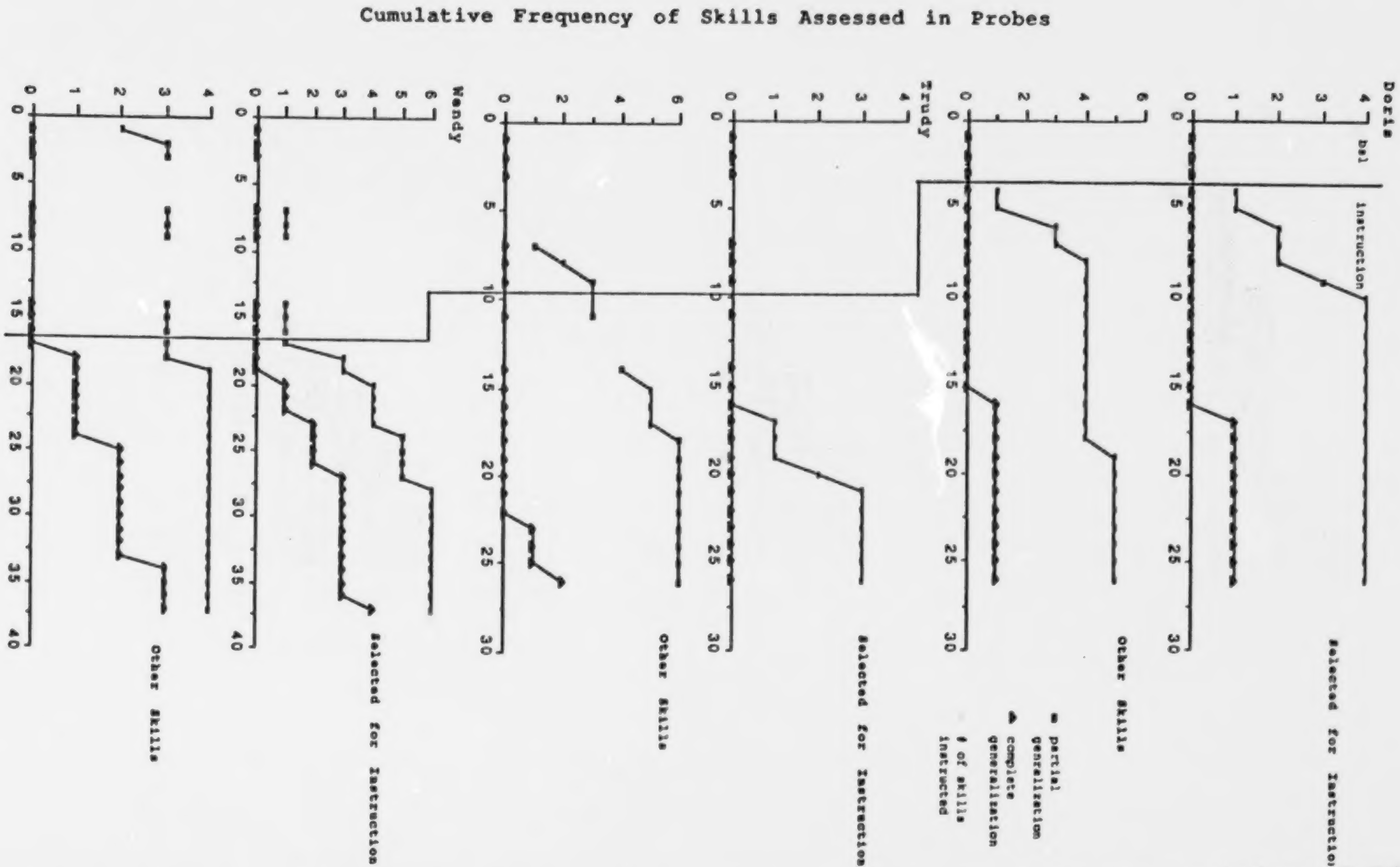

Figure 4.4. Performance on probe trials across students. Complete generalization was defined as generalization to three untrained cases. Partial generalization was defined as generalization to one or two cases.

generalization to one (11%) of the other skills. Performance on both sets of skills improved after instruction was implemented.

Trudy was assessed on 12 skills during probe trials. She showed partial generalization on three (75%) of the skills selected for instruction, but did not show complete generalization on any. Trudy showed an increase in performance on the other eight skills during the Baseline Phase. This included performance on skills for which she had demonstrated some aptitude during Baseline.

Wendy was assessed on 10 skills during the probe sessions. Wendy demonstrated partial generalization on the skill of "expressing opinions" during the Baseline Phase. She demonstrated partial generalization on all six of the skills selected for instruction during the instructional phase, and demonstrated complete generalization on 4 (67%) of those six skills. Of those skills not selected for training, Wendy showed partial generalization on three skills during the Baseline Phase, and a fourth skill during instruction. She demonstrated complete generalization on three (75%) of the untrained skills during instruction.

The data across students indicated that the instructional program was effective in increasing the generalization to novel cases. The only exception was Wendy and her performance on the skill of "expressing opinions." However, this was a skill that Wendy had performed with 80% accuracy during Baseline and had been included for instruction anyway at the request of her teacher. Conclusions regarding performance on the skills on which the students did not receive instruction are tenuous. Both Wendy and Trudy demonstrated some improvement during Baseline Phase. Also, they had demonstrated more skills during the initial Baseline. There seemed to be a general increase in overall responding for all three students following the implementation of instruction.

Interaction Generalization Observation data. The IGO data are summarized across students and across study phases in Table 4.10. Doris appeared to increase the amount of time she spent in interactions, the number of bids she made during the observations, and the number of bids within interactions cycles. Trudy also increased the amount of time she spent engaged in interaction and the number of bids within one interaction cycle. Additionally, Trudy increased the time she was engaged in each cycle and decreased the number of interaction cycles that she initiated. Wendy appeared to increase the amount of time she spent engaged in interaction. These data indicated that there may have been a pattern of increasing time in interaction as a result of participation in the

Table 4.10

Mean Performance on Interaction Generalization Observations Across Phases

	Phases			
IGO Variables	Baseline	Intervention	Follow-up 1	Intervention 2
Doris	n=2	n=12	n=9	n=8
Minutes engaged	.30	4.55	5.28	4.96
in interaction	(.25-.35)	(0.7-9.90)	(.00-8.60)	(.58-9.97)
Interaction	6	7.6	8.7	7.4
cycles	(6)	(1-15)	(0-17)	(2-17)
Cycles initiated	2	4.7	4.1	2.8
by student	(0-4)	(0-10)	(0-7)	(0-8)
Cycles initiated	4	1.9	4.6	2.6
by others	(2-6)	(0-4)	(0-12)	(0-9)
Student bids	9	17.5	32.6	27
	(6-12)	(0-43)	(0-88)	(5-54)
Partner bids	11	22.6	29.1	27.1
	(10-12)	(5-56)	(0-51)	(4-52)
Bids student	1	1.1	2.2	1.9
ignored	(1)	(0-6)	(0-8)	(0-9)
Bids partner	1	1.8	.7	1.6
ignored	(0.2)	(0-9)	(0-2)	(0-4)

(table continues)

Table 4.10 (cont.)

	Phases			
IGO Variables	Baseline	Intervention	Follow-up 1	Intervention 2
Doris				
Bids per cycle	3.2	13.1	5.3	13.6
	(2.5-4.0)	(.6-102.0)	(0-12.9)	(.8-53)
Time per cycle	.05	1.36	.53	1.24
	(.04-.06)	(.47-9.9)	(.30-1.07)	(.12-4.98)
Trudy	n=4	n=8	n=8	n=7
Minutes enagaged	2.44	4.00	6.82	4.77
in interaction	(.20-3.68)	(.35-8.93)	(4.30-8.60)	(3.25-6.85)
Interaction	12.5	6.8	8	7.3
cycles	(11-15)	(4-10)	(5-10)	(5-11)
Cycles initiated	8.5	3.8	2.9	3.9
by the student	(5-14)	(1-6)	(1-6)	(1-7)
Cycles initiated	3.0	3.0	4.26	3.1
by others	(0-6)	(0-5)	(1-7)	(1-7)
Student bids	21.2	20.0	39.3	27.7
	(18-24)	(12-32)	(28-54)	(16-37)
Partner bids	18	19.4	42	26.4
	(14-26)	(12-28)	(27-50)	(18-36)
Bids student	0	.38	.75	1.1
ignored	(0)	(0-2)	(0-2)	(0-4)

(table continues)

Table 4.10 (cont.)

	Phases			
IGO Variables	Base- line	Inter- vention	Follow-up 1	Inter- vention 2
Trudy	n=4	n=8	n=8	n=7
Bids partners ignored	4.5 (1-8)	2 (0-4)	1 (0-5)	4.4 (0-24)
Bids per cycle	3.2 (2.5-4.6)	6.2 (3-11.8)	10.6 (7.3-18)	7.7 (5.6-11.2)
Time per cycle	.20 (.01-.33)	.71 (.04-2.23)	.90 (.43-2.23)	.68 (.41-1.05)
Wendy	n=6	n=5	n=7	
Minutes engaged in interaction	3.81 (1.42-8.16)	5.58 (.82-7.78)	6.50 (2.67-8.21)	
Interaction cycles	7.5 (4-15)	8.0 (6-9)	7.14 (5-10)	
Cycles initiated by student	5.8 (4-11)	6.4 (3-8)	5.6 (3-9)	
Cycles initiated by partners	1.5 (0-3)	1.2 (0-2)	1.7 (1-3)	
Student bids	29.3 (19-41)	38.4 (17-54)	36.7 (11-59)	
Partner bids	29.5 (24-38)	37.6 (17-57)	36.6 (14-56)	

(table continues)

Table 4.10 (cont.)

	Phases			
IGO Variables	Base-line	Inter-vention	Follow-up 1	Inter-vention 2
Wendy	n=6	n=5	n=7	
Bids student ignored	1.8 (0-5)	.8 (0-1)	2.6 (0-12)	
Bids partner ignored	.67 (0-2)	1.8 (0-4)	.57 (0-3)	
Bids per cycle	9.5 (3.7-15.8)	10.0 (4.25-18.50)	10.5 (3.6-15.0)	
Time per cycle	.74 (.10-2.04)	.72 (.10-1.19)	1.00 (.35-1.64)	

study. The data also indicated individual differences across students.

Some of the data appear to be stable across phases of the study. These include: (a) the number of interaction cycles per IGO for Doris and Wendy; (b) the cycles initiated by Wendy and by her conversation partners; and (c) bids that Doris ignored. The data in the other categories were variable across phases of the study. This lack of consistency across students or across phases indicated that there may not have been a direct relationship between the instructional program and student generalized responding in unstructured social settings.

Social Validation

The social validation segment is divided into four sections. The interview responses are organized according to the behavior changes noted about each student. A section on the overall validation of the program follows the individual student sections.

Doris

Doris's teachers, acquaintances, and work supervisors were asked to describe Doris's strengths in social situations, her needs to facilitate social interactions, and any changes they had noticed in Doris since the last interview or since the last phase of the study. More details are provided about these interviews in the preceding "Student Description" section. The strengths, weaknesses, and changes that were described by more than one respondent are included in the results.

Strengths. Interview respondents used four traits to describe Doris's strengths: (a) participation in interactions with favored persons; (b) ability to "get along;" (c) helpfulness; and (d) sense of humor. The first three strengths were listed during interviews conducted before Intervention, at the end of intervention, and during the Follow-up Phase. The final strength, sense of humor, was included in the Intervention Phase and in the follow-up phase.

Throughout the study, Doris participated in interactions. Respondents stated that Doris interacted with classmates, children, and others she knew well. During these interactions, Doris was described as friendly. The second strength Doris exhibited in social interactions was "getting along." She responded to others, talked with them, would persevere in interactions with individuals who showed an interest, and was agreeable. The third strength described in Doris's social interactions was her helpfulness to others.

Although the final strength, sense of humor, was not mentioned until the end of the intervention, it is unlikely that the intervention affected her sense of humor. Making jokes or dancing were not skills selected for instruction. The study did not appear to increase the amount of perceived strengths in Doris.

Needs. Multiple interview respondents listed eight needs Doris had in order to participate more fully in social interactions. Four of the needs were mentioned in all three phases of the study. These were: (a) the need to improve verbal skills; (b) the need to continue conversations; (c) the need to decrease inappropriate behaviors; and (d) the need to look at others when talking to them. The intervention did not alter Doris's need for improvement in these areas.

One need was mentioned during the Pre-intervention Phase and at the end of the Intervention Phase, but not during the follow-up phase. Doris's need to be able to initiate interactions was mentioned during the first to phases of the study. She needed to initiate with peers, ask to join in groups, and to talk with new people. The fact that respondents no longer perceived needing to learn to initate as a need indicated that Doris's ability to initiate may have improved during the course of the study.

The final group of needs were mentioned during the End of Intervention and Follow-up Phases, but not during the Pre-intervention Phase. These needs were: (a) the need for increased self-concept; (b) the need for a more structured living environment; and (c) transportation to participate in more activities. These needs were beyond the scope of the intervention.

Noted changes. In addition to the questions regarding the strengths and needs, in the Post-Intervention and Follow-up interviews, respondents were asked if they had noted any changes in the student's behavior. Doris's employer at the workshop and her mother noted no changes in social behavior. The two teaching assistants and the second teacher noticed some changes. They noted that Doris: (a) was more likely to return greetings (although the respondent noted that the staff may have been providing more opportunities for her to respond); (b) was more likely to reword statements when asked for clarification; (c) was more likely to respond positively; (d) more likely greeted her peers at work; and (c) had generally improved her ability to communicate.

Trudy

Trudy's guardian and her first teacher were interviewed during the pre-intervention phase. Trudy's parent, a neighbor, her employer, and both of her teachers participated in post-intervention and follow-up interviews. Strengths. Interview respondents mentioned five strengths of Trudy's. These were: (a) good verbal skills and the ability to converse; (b) friendliness; (c) helpfulness; (d) comprehension; and (e) likableness. The first four categories were listed as strengths in all study phases. The last category, "being liked by others," was not mentioned in Baseline, but was listed in the post-intervention and the follow-up interviews. It is not likely that the intervention program made Trudy more likeable, although if she improved in her ability to participate in interactions, it could have encouraged others to see her more positively.

Needs. The respondents listed three needs that Trudy had in order to participate in social interactions. The need for "improved eye contact" was mentioned in every phase. The need "to extend or vary social interactions" was listed in pre- and post-intervention interviews, but not in follow-up interviews. The final category, "more opportunities to interact" was included in post-intervention and follow-up interviews, but not in the Pre-intervention Phase. Possibly, intervention did improve Trudy's ability to extend and vary social interactions. Additional respondents became aware of Trudy's limited opportunities for interaction.

Noted changes. During the post-intervention interviews, Trudy's employer and both teachers noted changes in Trudy's behavior over the course of the study. During the post-intervention interviews, multiple respondents noted that Trudy reduced her stereotypic arm movements, interacted more and more appropriately, and interrupted less. Other changes noted by individuals included improved eye contact and Trudy's talking to herself less. Two respondents commented that her work had improved during the same time. Her parent reported seeing no changes in Trudy's social behavior.

During the follow-up interviews, Trudy's employer reported that she continued to be responsive to staff in social interactions and to continue more social interactions in appropriate ways. He also commented that even though Trudy talked about the same topics (e.g., coffee), she discussed them in a more appropriate way. A co-worker did not notice any changes in Trudy's social behavior. Her guardian reported that Trudy became more moody at home during the same time period.

Wendy

Wendy's parent answered the interview both pre- and post-intervention. Her first teacher completed an interview in the pre-intervention phase. Her second and third teachers, her employer, and a co-worker answered questions in the Post-intervention Phase.

Strengths. There was no change in Wendy's strengths in social interactions as described by interview respondents over the course of the study . All four of Wendy's strengths were mentions pre- and post-intervention. The strengths were: (a) friendly; (b) initiative and responsive in interactions; (c) converses appropriately demonstrating a variety of skills; and (d) listening.

Needs. Interview respondents listed six needs for Wendy to increase participation in social interactions. These were: (a) not engaging in physical contact with others; (b) not asking questions on personal topics; (c) not talking to strangers; (d) increasing the range of opportunities for interactions; (e) not talking out; and (f) increasing the variety of conversation topics. Only one category was not listed in both phases. The need to "increase the range of conversation topics" was mentioned in post-intervention interviews, but not in pre-intervention interviews. Wendy's parent was the only respondent who noted that Wendy "talked out." The social skills training program did not appear to eliminate any of Wendy's needs for improved social interaction.

Noted changes. Three of the four post-intervention respondents noted changes in Wendy's behavior. Her second teacher noticed that she used greetings from the instructional program, that she decreased the frequency of talking to strangers, and that she would repeat the rules for initiating interactions after her mistakes in the vocational and community settings. Her third teacher and her employer noted that she talked less and was less persistent in interactions. Her parent and the third teacher reported that Wendy got along better with others. Her employer reported that she was less likely to interrupt and her third teacher noticed that she was varying topics in interactions. Even though the perceived strengths and needs did not change over the course of the study, interview respondents noticed some improvement in several skill areas.

Instructional Program

All of the interview respondents in the Post-intervention and Follow-up Phases were asked to critique the instructional program and make suggestions for improvement. Those familiar with the program (i.e., had assisted in development, participated as conversation partners, or were present during some instructional sessions) were asked to give specific feedback about the components of the program. The interviewer described the overall program and asked for comments for those not familiar with the specifics of the program (i.e., parents, guardians, and co-workers).

Relevance of skills for training. All of the interview respondents stated that they thought the skills selected for instruction were relevant. Dave, the second teacher, while confirming that the skills were relevant also noted that he felt job skills were more important for the students.

Observations to select skills. The second and third teachers were asked to respond to this aspect of the instructional program. Dave thought that it was useful, but too time consuming for teachers to actually complete. Bob stated that it was as "good a way as any," but that it was difficult to determine a correct way to interact.

General case. The three teachers, the two assistant teachers, and the supervisor at the Franchise Motel were asked to respond about the use of general case instruction. One assistant and the employer supported the use of general case instruction without reservations. Joyce and Dave believed that it was "good for generalization," but was too time consuming to prepare and required too much time in the Baseline Phase. Dave expressed concern about whether the students generalized from the picture cues. Another assistant teacher felt the program was too repetitive. The third teacher did not feel that he had enough familiarity with general case to respond.

Multiple exemplars. Multiple exemplars referred to the use of multiple conversation partners. Seven of the eight respondents to this question supported the use of multiple exemplars for generalization, for normalization, and for introducing the students to potential friends. Brandon was uncertain of the value of using multiple peers.

Prompts and feedback. All of the respondents felt the prompts and the feedback were appropriate. The students needed to know both what they were doing well and where they needed to improve. One respondent noted that the use of verbal prompts and reinforcement was most appropriate for social skills instruction. Dave and Bob confirmed that time delay was a "good" strategy for fading prompts.

Practice conversations. Five respondents were asked to comment on the use of practice conversations with prompts. Two assistants, two teachers, and one employer felt it was an appropriate instructional method. Three of the respondents felt it was among the most important or critical components in the program.

General feedback. All of the respondents, except one co-worker, recommended that the teacher should continue the use of the instructional program. Some of the respondents commented on other factors effecting the program. Three respondents noted that one of the most positive aspects of the program was that the author and the assistants spent time with the students. Bob, the third teacher, noted that personality was more important than skill level. Brandon, the Franchise Motel employer, commented that performance may have improved as the students' got to know project staff and co-workers over time.

Several suggestions were made for continuing the use of the program. The first assistant teacher and Doris's first supervisor at the workshop recommended that the program should be integrated into the whole day. Dave said he would use the least time consuming parts of the program and would individualize more. He also would not prompt during practice conversations, but would give reminders at the beginning of a conversation and feedback at the end of the conversation.

IGOs. Six respondents were asked about their own behavior and student behavior during IGOs. All of the respondents reported that the students did not act differently during the observations. One respondent noted that they may have been curious at first, but soon forgot.

Five of the respondents also reported that they did not believe that their behavior was any different when the observers were present. Annie, the acquaintance, stated that she felt uncomfortable and awkward during the observations and may have initiated interactions less often because she wanted to give the students an opportunity to interact.

There were some small changes in perception of student abilities and needs. Interview respondents did notice changes in student behavior. Feedback on the instructional program was generally favorable. The assessment and skill selection components of the program are time consuming.

"Loose" Training to Mediate Generalization

Reliability

Both inter-rater and procedural reliability were measured for the program. During sessions where inter-rater reliability data were collected, two independent observers rated student performance of skills. The teacher counted the number of correct responses on the bead bracelet, the reliability observer recorded student responses with pencil and paper. Inter-rater reliability was collected on seven (58%) of the probe trials. Reliability was measured for only one skill for each trial. The reliability for probe data ranged from 90 to 100% per session with an average agreement of 99%

Reliability was assessed on eight (47%) of the training trials. Agreement ranged from 90 to 100%, with an average of 95%.

Procedural reliability was assessed by an independent observer. The observer recorded whether or not the teacher presented the student with a bid, provided consequences correctly, provided the opportunity for a practice trial when necessary, and provided appropriate consequences for the second trial. Procedural reliability data were collected on five (28%) trials. Trials were distributed across teachers and across skills. The rate of procedural reliability ranged from 94 to 100% with an average reliability of 97%.

Results of Instruction

"Loose" training to facilitate generalization to natural environments was assessed through a multiple-baseline across skills design. The results are presented in Figure 4.5. Baseline was conducted for six sessions. The first target skill (i.e., eye contact) increased briefly, but was descending when instruction began. Doris exhibited all three behaviors at consistently low levels.

Phase "a" indicated that reinforcement was available for prompted and unprompted responses. Reinforcement was provided for independent correct responses only during Phase "b". Doris attained the 80% mastery level for eye contact and for eye contact and acknowledgement in five

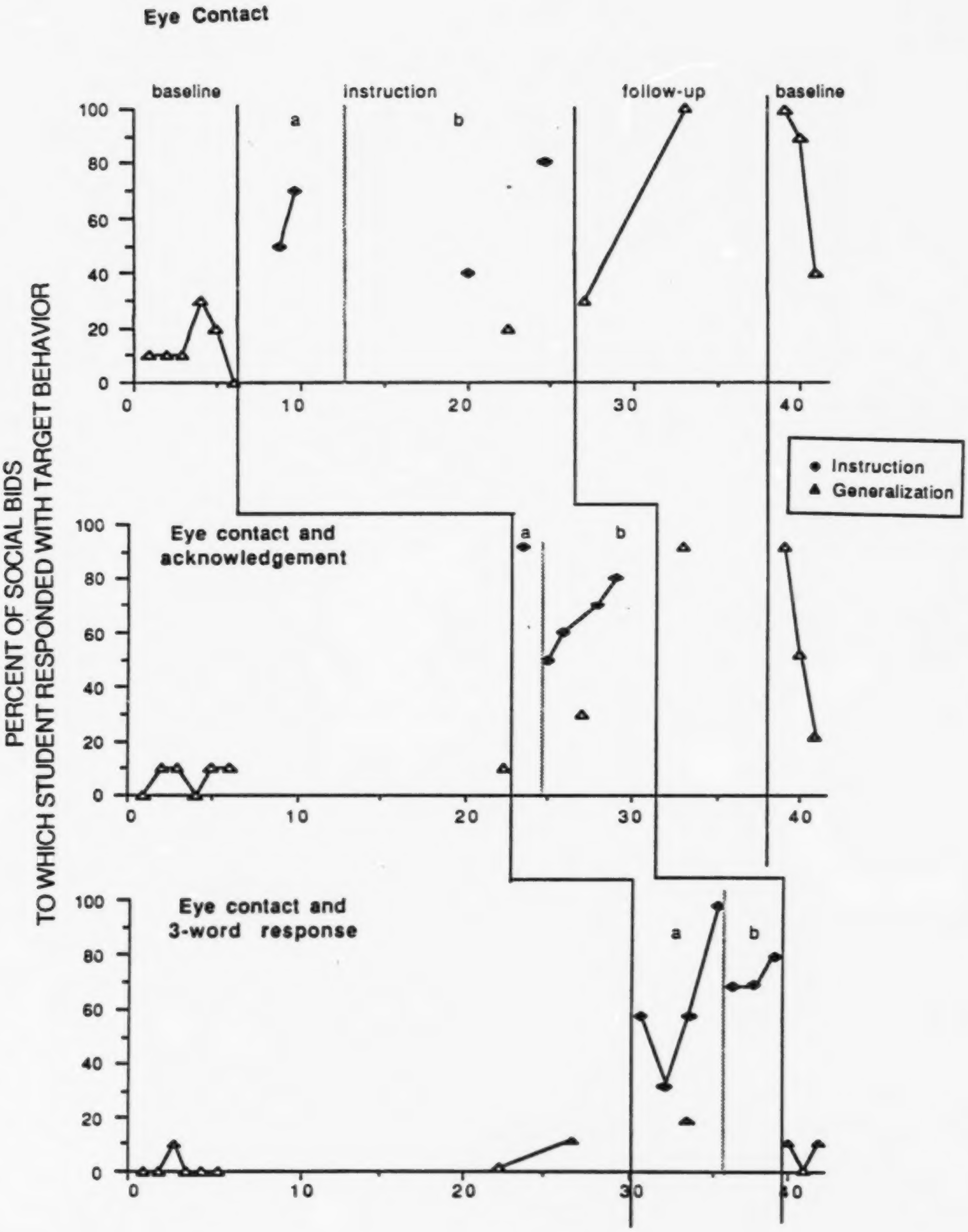

Figure 4.5. Doris's performance across skills in the "Loose" training program to mediate generalization.

sessions. She mastered three word responses in seven sessions. Instructional procedures increased Doris's ability to demonstrate the selected social skills.

The results of generalization were not as consistent. Generalization was measured in sites other than where instruction occurred and with no instructional procedures. The rates of performance of the first two skills continued to increase after instruction on the particular skill, but while instruction was being implemented for other skills. When instruction on all three skills was completed, the rate of performance of all skills decreased in the generalization environments. These results indicate that generalization did not occur until after mastery of an 80% level. Instructional contingencies (i.e., reinforcement) had to be maintained in other environments for generalization to be maintained.

Social Validation

The parent and a workshop supervisor responded to interviews about the instructional program and Doris's behavior. The same types of needs and strengths that were noted following the social skills instructional program were reported in the phase following the "loose" training program. Doris's mother and her work supervisor noted improved eye contact. Doris's mother noted that Doris was more likely to respond to social bids. Doris's work supervisor noticed a decrease in the tantrum behaviors.

Both the parent and the supervisor stated that the program was appropriate. The workshop staff implemented a similar token economy program for on-task behavior at the workshop. Doris's mother had participated in the initial development of the program, but chose not to continue program implementation. The program was designed to be faded to Doris's pay schedule and the frequency with which the family took her shopping. At the end of the study, her mother reported that the family was no longer taking Doris on outings. Instead, they completed errands when Doris was at work. Doris's mother did state that she felt the program could be easily implemented at home.

Content Analysis of Social Interactions

The results of the interaction generalization observations was predominantly variable across phases of the instructional program. Two variables that could have influenced the interactions were explored in the content analysis. First, the whole global interactions were analyzed to determine what type of interaction patterns emerged. Secondly, the transcripts were divided into different setting groups to determine whether the level of integration or the presence of instructional personnel influenced the social interaction.

Types of Interaction

Five categories emerged from the content analysis of the IGO data. The categories were: (a) mutual interactions, (b) interviewing interactions, (c) storytelling interactions, (d) reactive interactions; and (e) combined interactions. The categories reflect the general pattern of interaction throughout the 10 minute observation. Each category is described below and followed by an example. After the categories are described, the relationship between the type of interaction and other study variables are discussed.

Mutual Interaction

Definition. All conversation participants shared control of the interaction during mutual interactions. Both participated in selecting topics to discuss and discussed both the topics they initiated and those initiated by others. Those taking part in the interaction both shared some information with others about the topics they discussed and showed they were attending when others shared.

Some mutual interactions appeared similar to interview interactions described below. If an interaction consisted of mostly questions, mutual interactions were differentiated from interviewing interactions because both members shared information. The primary questioner shared information and the one being questioned also had the opportunity to ask some questions and to initiate some topics. (The observation of Wendy in Appendix G is also a mutual interaction.)

Analysis of the example. The following conversation between Annie and Trudy took place at a Fast Food Restaurant where they met for lunch. This interaction was classified as mutual because Annie and Trudy both shared about themselves. Annie asked Trudy about her coffee preferences and then shared her own. Annie listened to Trudy and asked for details about a picnic. Then Annie shared her own interest in walking. When Trudy changed the subject to running in physical education class (Line 18), Annie responded. When the conversation changed to television, both Annie and Trudy discussed the shows they were interested in. The conversation about the sweater in lines 61 through 66 was initiated by Trudy. Both partners shared information about the topic being discussed and shared the selection of topics.

In this interaction, Trudy made some social skill errors. Annie's responses predominately served to return to a mutual interaction rather than insisting Trudy maintain the previous topic. For example, when Annie is attempting to get Trudy to tell her about what she does at home, she was confused by Trudy's answers. Annie does not know that Trudy works at another motel "at home." Trudy also confused the two motels when she talked about Brandon. Trudy eventually exhibited some stereotypic behavior. At that point Annie began searching for another topic. When Trudy did not respond to her remark about people in line, Annie tried television. This conversation fits the category of mutual interaction because both members shared information about the topics discussed.

Example.

Context: Annie and Trudy are at Fast Food Restaurant having lunch. Trudy is eating her french fries and drinking her coffee. She is sitting next to Annie. The author and a research assistant are across the table observing.

1 Annie: They like to put me on the spot. They think it's funny. They are pretty funny sometimes, huh? [About the observers]

2 Trudy: Yeah. [She does not look at Annie.]

3 Annie: Sometimes they are. ... Do you always drink your coffee with cream?

4 Trudy: Yeah.

5 Annie: I drink my coffee black. Sometimes I use cream, but most of the time I drink it black.

[Pause]

7 Annie: Did you go to the park with the folks at the Franchise Motel?

8 Trudy: Yeah. [She did not actually go with them.]

9 Annie: What did you do with them?

10 Trudy: We fixed some food and eat. [Trudy is not looking at Annie.]

11 Annie: So did you have a picnic?

12 Trudy: Yeah. We ate some food and go for a walk. [Trudy still is not oriented to Annie.]

13 Annie: Oh, you went for a walk.

14 Trudy: and walk.

15 Annie: Right, and you went for a walk. I go for walks.

16 Trudy: Walk back all the way.

17 Annie: You walked back all the way, huh? I went for a walk with my dog last night.

18 Trudy: She made me run.

19 Annie: Who?

20 Trudy: Karen. (Refers to physical education teacher from last year.) [Trudy now looks to Annie.]

21 Annie: Karen. Good, so you didn't have my dog then, huh?

[Trudy does not answer and there is a pause in the conversation]

22 Annie: What do you like to do when you go home?

23 Trudy: Rest my bones, get up, and eat lunch. [Trudy does not orient towards Annie.]

24 Annie: What? Look at me, I can't hear you when your head is turned.

25 Trudy: Go home and help Katherine and fold towels and wash sheets.

26 Annie: That's what you do at work, what do you do in

the evening? ... What do you do when you go home?

27 Trudy: Help Brandon do laundry.

[Summary of omitted section: Annie continued to try to straighten out whether they are talking about home or Franchise Motel. Trudy repeated her daily routine while being stereotypic and Annie stopped attempting to interact]

28 Annie: This must be the big lunch rush. There's a lot of people here now.

[Trudy does not respond and Annie stops talking for awhile.]

29 Annie: Do you watch t.v. at night?

30 Trudy: Yeah.

31 Annie: I like to watch "Wheel of Fortune."

32 Trudy: I like "Loving" and "All my children".

33 Annie: That's a soap, right?

34 Trudy: Yeah.

35 Annie: What's going on?

36 Trudy: I don't know.

37 Annie: Who do you like? Who's your favorite character?

38 Trudy: [said something the observer could not understand.]

39 Annie: I've watched "Santa Barbara" sometimes. That's another soap opera.

[Another pause in the interaction.]

40 Annie: Last night, like I said, I took my dog for a walk.

41 Trudy: Did he bring back in?

42 Annie: What?

43 Trudy: Did he bring back in?

44 Annie: I don't understand.

45 Trudy: Did he bring back in?

46 Annie: Oh. Did I bring him back in? Is that what you mean?

47 Trudy: Right.

48 Annie: Yes. I had to bring him back in. There was a big dog barking at her and that dog tried to bite her.

50 Trudy: Why?

51 Annie: Well. because I have a little dog. I didn't want the big dog to hurt it. ... Do you have any pets?

53 Trudy: Yeah.

54 Annie: What kind?

55 Trudy: I have a cat and a dog [something else the observer could not understand].

56 Annie: Look at me, I can't hear you.

57 Trudy: A white snowball cat.

58 Annie: One cat, is that all? ... Is that it's name?

59 Trudy: Yeah. Snowball.

60 Annie: The cat that lives at my house is named Lily.
[mutters under her breath] So what? [when Trudy
does not respond to her.

. . . .

61 Annie: It's a pretty sweater. Its a good color.
62 Trudy: Uh-huh. It's red, too.
63 Annie: Yeah, I like that color. It reminds me of
raspberries.
64 Trudy: Might want to get you a sweater.
56 Annie: Yeah. I put on a sweater, too, this morning.

Storytelling Interactions

Definition. Interactions were classified as storytelling when one individual did most of the talking. Typically, storytellers were describing or telling about something that had happened to them. The partner responded with brief acknowledgements and comments. The partner did not share about themselves. If the partners' responses did not serve to further the story, the person doing the storytelling sometimes ignored them. These interactions tended to have fewer responses per minutes of interaction because the storytelling responses took more time than responses in other types of interactions.

Analysis of the example. This example is taken from an interaction generalization observation. Observer reliability was conducted at this time so there were two observers present. Doris and Annie had just finished eating their lunch and were sitting together. Only the first half of the interaction is included here. Within the storytelling part of the interaction, Doris and Annie discussed an incident where Annie was embarrassed, their reactions to being observed, acupressure for headache relief, and another customer. Following these initial interactions, the interaction became more like an interviewing interaction.

In the beginning of this observation, however, it appeared to be a storytelling interaction. Annie told Doris four "stories". One story was about Annie's skirt blowing open in front of a group of people earlier in the day. She told the story in the beginning of the interaction, in lines 1-8. Doris interjects some expletives such as "oh God" and "Jeez." These remarks may have been a reaction to Annie's story or "I'm not interested in this" or referring to her headache. Regardless of intent, the remarks did serve to further the interaction of the story telling. In lines 10 and 11, "See, look what I did." Annie referred to the story again and pantomimes her actions.

There were three more stories in this interaction. In Line 18, Annie told Doris what she did when she has headaches. In line 32, Annie told Doris about acupressure for headaches. Finally, in Lines 36 and 38, Annie described the appearance of another customer at the Fast Food Restaurant.

In this section of interaction, there were some exceptions to storytelling. Doris initiated some interactions that differed from Annie's stories. Doris said three times that she had a headache following pauses in the conversation (Lines 1, 12, and 28). On the first occasion, Annie ignored Doris and told her story about the dress. The second time, Annie attempted to discuss the headache and Doris stopped participating in the interaction. After Doris's third headache bid, Annie told Doris a story about what Annie's friend did for headaches. In addition to the headache bids, Doris initiated a couple of exchanges about Nelda's data collection (lines 9; and 22-28). Neither exchange started a multiple exchange interaction. Annie did not respond to Doris's bid in line 9 and Doris returned to the headache topic after Annie tried to extend the interaction the second time.

This interaction was predominately storytelling because the conversation partners attempts at other interactions were unsuccessful. Annie, after Doris stopped interacting several times finally asked Doris if she wants to interact (33-35). Doris says "Maybe" and then stopped responding to questions again. Annie was left with little alternative but another description.

Example.

Context: Doris and Annie are having lunch at Fast Food Restaurant. The author and a research assistant observed the interaction. Doris and Annie have finished lunch and are sitting at the table.

1 Doris: I have a headache. [Doris has her head in her hands.]

2 Annie: Let me tell you something embarrassing that happened to me that happened today. See my dress, how it opens like this ... [Annie goes on to explain how she was walking and the wind blew her skirt open.]

3 Doris: [Looking at Annie as she tells the story.]

4 Annie: [Continues telling Doris about the skirt incident]. There were several people around who saw her skirt blow open.

5 Doris: Oh God.

6 Annie: Yeah, "oh God" was what I said too. I looked and this is what I did. [pantomimes her reaction.]

7 Doris: Jeez.

8 Annie: [tells more of the story.]

[Pause in the conversation.]

9 Doris: [Points to Nancy who is writing.] I'm going to do that.

[Annie doesn't respond. There is another pause.]

10 Annie: See, look what I did. [Does the pantomime again.]

[Doris does not respond. Pause.]

11 Annie: See? Look what I did?

[Doris doesn't respond and there is another pause.]

12 Doris: I have a headache.

13 Annie: You have a headache?

14 Doris: Yeah.

15 Annie: Do you take aspirin for a headache?

[Doris does not answer and there is another pause.]

16 Annie: What do you usually do for a headache?

17 Doris: [holds her head and looks down at the table.]

18 Annie: When my back hurts, I do deep breathing exercises. I like to meditate and try to relax. ... I wonder if that would work for a headache. [pauses and waits for Doris to respond]. What do you think?

19 Doris: Nothing.

20 Annie: [muttering] That's what I figured.

[Doris watches Nelda write.]

21 Annie: [leans in next to Doris.] Pretty interesting, huh?

22 Doris: "I'm going to get one."

23 Annie: Huh? What?

24 Doris: My mother have one.

25 Annie: Your mother has one?

26 Doris: Yeah.

27 Annie: What does she do?

[Doris does not answer and there is a pause.]

28 Annie: [about Nancy writing] Pretty fast, huh?

[Doris does not answer and there is another pause.]

29 Doris: I got a headache.

30 Annie: Look, let me see your hand.

31 Doris: No.

32 Annie: Look, this is what my friend used to do. She's take my hand and pinch [continues explaining acupressure while she demonstrates technique on Doris's hand.]

[Doris does not seem to be paying attention and Annie stops talking.]

33 Annie: Maybe you don't want to talk. Do you want to talk?

34 Doris: No. [Pauses and looks at Annie out of the corner of her eye.] Maybe.

35 Annie: Do you want me to talk?

[Doris does not answer and there is a pause.]

36 Annie: [indicated person at another table.] See that? She has lots of rings.

37 Doris: [Looks at the girl.]

38 Annie: Oh. She moved her hand now. You can't see them.

Interviewing Interactions

Definition. The interview was characterized by a predominate pattern of question and answer. One partner asked most of the questions and the other person answered. The interviewer questions were to learn more about the partner, to find out more information about an event, or to determine a topic for "mutual" interaction. The interviewer showed interest in the conversation by responding to their partners answers. (The first observation of Doris in Appendix G is an interview interaction).

Analysis of the example. This example is from a practice conversation where a prompter was standing behind Wendy to remind her to continue the conversation, to look at her conversation partner, and to attend to the topic of conversation when Wendy made errors or did not respond to her partner after 6 seconds. This conversation also included a brief interaction with Debby, the supervisor of Wendy's school program.

The author and Wendy had agreed to discuss Wendy's absence from work the preceding two weeks. Wendy initiated the conversation by describing her work that day. The author responded by asking her questions about her work (lines 3-10). Then the author and Wendy are interrupted by Debby.

After Debby and Wendy exchanged greetings, Wendy did not return to the interaction with the author, and was prompted. The author then discussed how valuable Wendy's contribution was to the Franchise Motel and how Wendy was missed when out. Wendy continued discussing work at the Chain Motel instead of her absence. The author acknowledged her in Line 20 and added a question about Wendy's absence. Wendy talked about work at home. The author responded by asking more questions about this work. Wendy began talking about cooking and the author asked questions about how Wendy assists in cooking at home.

The conversation briefly shifted from the author interviewing Wendy to Wendy questioning the author about cooking and food (lines 33-43). By line 45, the author was again questioning Wendy about juice preference and attempting to clarify what Wendy was saying.

This conversation sample was an interview example with the student Wendy being the recipient of the author's questions despite the variations in greeting and the brief exchange of roles of questioner and answer. Wendy and the author shared the initiation and choice of topics. Wendy initiated "work so hard" in Line 2, washing dishes in line 21, and juice to drink in line 41. The author initiated the topics of being missed at work in line 16 and work at home in line 26.

Example.

1 Leslie: Hey, Wendy, how you doing?

2 Wendy: Fine. I work hard.

3 Leslie: You worked really hard today?

4 Wendy: Mm-mmm.

5 Lelsie: What all did you do?

6 Wendy: I took the sheets off beds.

7 Leslie: You took the sheets off beds.

8 Wendy: Uh-huh.

9 Leslie: Did you do any washing today?

10 Wendy: See .. [Something about towels. Couldn't hear because Debby was talking so loudly.]

11 Wendy: Hi, Debby.

12 Debby: Hi, Wendy. How do you feel?

13 Wendy: Fine.

14 Kelly: Wendy, look at Leslie and talk about work.

15 Wendy: I work so hard.

16 Leslie: That's right, we've missed you. I heard that they would get really behind on busy days because you weren't there.

17 Wendy: Dave work at Franchise Motel.

18 Leslie: Huh?

19 Wendy: Dave work at Franchise Motel.

20 Leslie: Yeah. You work with Dave at the Franchise Motel Did you miss work while you were at home?

21 Wendy: I wash the dishes.

22 Leslie: Did you wash the dishes at home?

23 Wendy: [no response]

24 Leslie: Did you wash the dishes at home?

25 Wendy: Yeah.

26 Leslie: Yeah. Even when you were sick? Did you help your mom out around the house?

27 Wendy: No.

28 Leslie: No? But you washed the dishes? That's not helping your mother? What other kind of work did you do when you were home?

29 Wendy: I cook!

30 Leslie: You cooked? What do you cook?

31 Wendy: Chicken.

32 Leslie: You cook chicken? Did you make fried chicken or boiled chicken or chicken salad?

33 Wendy: Baked chicken.

34 Leslie: You baked chicken? That's good.

35 Wendy: What do you cook?

36 Leslie: Oh, well the last time ... I made this really funny dish last night.

37 Wendy: What you have for dinner last night?

38 Leslie: Rice, mung beans, and tomatoes and cheese and cream sauce.

39 Wendy: Did you like it?

40 Leslie: Yeah. It was pretty good. I probably won't make it again, though.

41 Wendy: What are you going to have for dinner tonight?

42 Leslie: Oh, boy. Um ... I don't know. Maybe a salad.

42 Wendy: What are you going to have to drink? Water?

43 Leslie: Umm ... I uh ... Usually I have like water and juice. I mix 'em together.

44 Wendy: Apple juice?

45 Leslie: Right now I have strawberry juice. It's pretty good stuff. You ever had strawberry juice? This was my first time to buy it.

46 Wendy: My mommy buy apple juice (plus something unintelligible)

47 Leslie: Buy apple juice ... what?

Reactive Interactions

Definition. The reactive category described interactions where one member of the interaction made most of the initiative to begin interaction cycles and to extend them. The recipient of the bids did not particularly encourage their partner to respond. If the active participant had not been persistent in making bids, the interaction would probably have ended. There are two example analyses below, one to illustrate a student as active member and one to illustrate student as recipient. (The second observation of Doris and the observation of Trudy in Appendix G are also "reactive interventions.")

Analysis of the examples. In the first example, Doris and Annie were shopping together. Doris was the recipient of Annie's attempts to show her possible purchases. Annie continued to make bids throughout the interaction, asking Doris what she likes and what she thinks of particular books and magazines. Doris usually responded negatively and walked away from Annie to another part of the store. Annie followed her and continued attempts to interact over the books. Most exchanges were two turns: Annie solicited an opinion from Doris and Doris responded with a phrase and moved on.

In the second example the student, Wendy, took the active role. To some degree, the nature of the work environment prevented Wendy from getting an interaction going. There were a number of people who passed through the laundry room who were working. Wendy tried to talk to an observer who was observing, her teacher who was going over data, and a co-worker who was getting laundry to go back out on the floor. The potential conversation partners did not assist Wendy in extending conversations because it was not a "break time" for them. Wendy still persisted in her attempts. The interactions were short, typified by Wendy initiating with a greeting or a compliment and the recipients acknowledging her.

The interactions may also be have been short because Wendy's use of compliments as bids do not serve as conversation starters. Compliments are not bids that will encourage the recipient to continue along the same topic. The following example is a complete 10 minute observation. There were fewer exchanges than usual for that amount of time and less time in interaction.

Student recipient interaction example.

Context: Annie and Doris are shopping in a book store at the mall. They are going to pick out a magazine that Doris will use as a material in the conversation training.

1 Annie: [Picks up a magazine with a picture of a man on the front cover.] That's nice. He's cute.

2 Doris: Yeah. [Then she turns her back on Annie and walks away.]

3 Annie: What do you think?

4 Doris: [Does not answer Annie.]

[A pause in the conversation.]

5 Annie: [notices that Doris is standing by the computer magazines.] What about computers? Would you like a magazine about computers?

6 Doris: uh-huh. [inflection for "no"]

7 Annie: [shrugs.]

[A pause in the conversation. Doris has walked away from Annie and the magazines and goes to a book section. Annie gets a magazine with a cover story on "Gorillas in the Mist".]

8 Annie: Here's one. Its about gorillas. There is a gorilla on the cover. Do you like gorillas?

9 Doris: [in a tone almost argumentative.] No. [continues to walk away from Annie.]

[A pause in interaction. Annie follows Doris as she moves farther into the store looking at books.]

10 Annie: Maybe a book then?

11 Doris: Yeah. Book.

12 Annie: [Annie goes to stand next to Doris.] Here's one. [Annie takes a book down from the shelf to show Doris.]

13 Doris: Going down here. [Walks away from Annie.]

[A pause in conversation.]

14 Annie: What about pictures? Would you like to have a book with pictures?

[Doris does not answer. She continues to walk down the aisle away from Annie and Annie follows.]

15 Doris: [Takes a book down from the shelf.] I read this book. [She looks at the book with her back turned to Annie.]

16 Annie: You'd like to read that book?

17 Doris: Yeah. [walks away from Annie]

[A pause in conversation]

18 Annie: Here are some books about boys and girls.

[Doris keeps walking away. A pause in interaction.]

19 Annie: How about animals? Do you like animals?

20 Doris: Yeah.

21 Annie: Would you like to find a book about animals?

22 Doris: Where?

23 Annie: I don't know. We could look for one.

Second example. Wendy was at break at the Franchise Motel. She finished pouring her coffee from the machine in the lobby. She was with a substitute teacher, Emily. Wendy had been trying to go out through the manager's office. There were two observers today, the author and a research assistant, to conduct reliability. Wendy had been instructed not to talk to the observers while they are taking notes as it is interrupting work.

1 Emily: I think you go out this way. [gestures to door by the hallway.

[Wendy follows Doris through the door and they walk down the hall and go into the laundry room. Gloria sits on the desk. Wendy sits in the chair next to her. Emily stands at the counter across the room fixing her coffee.

2 Gloria: Cookie.

[Wendy turns and looks at Gloria. After a pause...]

3 Wendy: Hi, Leslie.

4 Leslie: I'm working today. You have to talk to Gloria and Emily today.

[A pause in conversation]

5 Wendy: [to Leslie.] I like your hair that way.

6 Leslie: [looks at Wendy and raises her eyebrows, questioning look.]

7 Wendy: I like your hair that way.

8 Leslie: Thank you.

[Emily walks to the bathroom and then back to the counter to get data sheets. Then she walks to the desk and back to the counter across the room.]

9 Wendy: [says something to Emily that the observer could not understand.]

10 Emily: [stops, turns and looks at Wendy.]

11 Wendy: You look happy today.

12 Emily: Do I look happy? Thank you.

13 Wendy: So does Leslie. [to Leslie.] You look happy.

14 Leslie: I told you, I can't talk today.

[A co-worker comes in and walks over to the dyer near where Wendy is seated.]

15 Wendy: Hi Penny.

16: Penny: Hi. My towels dry yet?

[Emily answers Penny and goes over to the dryer. Penny gets towels and walks toward the door.]

17 Wendy: Penny.

18 Penny: Huh?

19 Wendy: I like your jeans.

20 Penny: Thank you. They're hot today.

[Penny leaves the room.]

21 Wendy: Mrs. Jones.

22 Emily: [looks at Wendy]

23 Wendy: I like your shirt.

24 Emily: Huh?

25 Wendy: I like your shirt.

26 Emily: Thank you.

[Jane, the front desk clerk, walks through the laundry room.]

27 Wendy: You look sharp.

28 Jane: Thank you.

[A pause in conversation. Emily goes back over to the counter and Jane comes back into the room.]

29 Wendy: Jane, guess what?

30 Jane: What?

31 Wendy: My mama got a car.

32 Jane: That's what, huh?

Combined Interactions

Definition. The above categories were used when at least 2/3 of the interaction cycles within an IGO followed the pattern. This category, combined, was used to describe those observations that included examples from multiple categories without a majority of cycles in any one category.

Relationship of Type of Interaction to Other Variables

The majority of the interactions were either mutual or reactive (31 each, 44%). Four percent (3) were storyteller interactions and seven percent (5) were interview interactions. Those IGOs that were categorized as combined were not included in this analysis. The interaction categories are examined across IGO variables and across students.

Interaction Generalization Observations. Table 4.11 illustrates the relationship between the types of interaction, the IGO variables, and the students. There appeared to be less difference among the mutual, storyteller, and interview categories than there was between these categories and the reactive category. The time spent in interaction during reactive interactions was low when compared to the other types of interactions. Students were engaged in interactions for the greatest proportion of time in interview and mutual interactions. The amount of social bids made during mutual, storyteller, or interview interactions was nearly double the frequency of bids made during reactive interactions. Students and conversation partners initiate approximately the same number of interaction cycles for mutual, storyteller and reactive interactions. Similar trends are noted in

Table 4.11

Comparison of IGO Variables Across Type of Interaction and Across Students

Variables by Student	Type of Interaction Mutual n = 31	 Story-teller n = 3	 Inter-view n = 5	 Reactive n = 31
Minutes Engaged in Interaction	6.22	5.67	6.87	2.92
Doris	6.11	4.42	7.23	3.03
Trudy	5.96	6.30	5.43	2.89
Wendy	6.65	----	----	2.72
Social Bids	69.8	73.0	76.4	34.1
Doris	65.7	61.0	78.0	27.9
Trudy	64.5	79.0	70.0	38.5
Wendy	80.0	----	----	42.3
Student Initiated Cycle	4.4	4.7	2.4	4.8
Doris	4.1	1.0	2.5	4.1
Trudy	3.2	6.5	2.0	5.4
Wendy	6.1	----	----	5.7

(table continues)

Table 4.11 (cont.)

Variables by Student	Type of Interaction Mutual n = 31	Story-teller n = 3	Inter-view n = 5	Reactive n = 31
Student ignored peer bids	1.0	1.3	2.2	1.4
Doris	1.3	4.0	2.8	1.1
Trudy	.7	0.0	0.0	.7
Wendy	1.0	----	----	3.5
Peer initiated cycle	2.7	2.7	3.6	2.8
Doris	2.8	5.0	2.8	3.1
Trudy	4.1	1.5	7.0	2.7
Wendy	1.0	----	----	2.5
Peer ignored student bids	.9	8.7	.4	2.2
Doris	.7	1.0	.25	2.2
Trudy	1.2	12.5	1.00	3.0
Wendy	.7	----	----	1.0
Minutes per interaction cycle	1.06	.73	2.67	.35
Doris	1.32	.74	3.18	.27
Trudy	.90	.73	.60	.41
Wendy	1.03	----	----	.43

Table 4.11 (Cont.)

Variables by Student	Type of Interaction			
	Mutual n = 31	Story-teller n = 3	Inter-view n = 5	Reactive n = 31
Bids per interaction cycle	11.1	9.5	28.3	4.4
Doris	13.2	10.7	33.4	3.3
Trudy	9.0	9.2	7.8	5.1
Wendy	11.8	----	----	9.6

"minutes per interaction" and "bids per interaction." These patterns were expected because conversation partners in these interactions did not extend interactions.

The interview interactions were distinguished in a few variables. Interview reactions resulted in the longest minutes per interaction and the bids per interaction cycle. This may have been because conversation partners were persistent in seeking a conversation topic in the observations in that category. Peers in the interview category also initiated more interaction cycles than the students and more bids per cycle than the other categories.

The storyteller interactions resulted in the greatest number of student bids ignored by the peer. This is not unexpected because ignoring bids about other topics was part of the definition of storytelling interactions. This distinction, greater ignoring bids, validates the categorization. It is important to note here that 24 of Trudy's bids were ignored during one observation during lunch at the Franchise Motel. One of her co-workers was telling a story to the others at the table. Trudy would comment on the story or on her lunch periodically, but the bids were ignored. This high rate of being ignored may have skewed the data for that category especially since only three observations fell into that category.

Student differences. More of Doris's interactions were reactive than those of the other students. Fifteen (45%) of Doris's interactions were reactive; nine (27%) were mutual; four (12%) were interviews; and one (3%) was a storyteller interaction. Trudy and Wendy both participated in more mutual interactions (48% and 62% respectively). The rest of Wendy's interactions (6) were reactive. Trudy's interactions were divided across categories: (a) 10 (40%) were reactive; (b) two (8%) were storyteller; and (c) one (4%) was interview. Doris's interactions may have been more likely to be reactive due to her limited verbal skills and limited eye contact. These skill deficits did not assist in extending interactions. Wendy and Trudy were perceived as being more skilled and socially appropriate and they participated in proportionately greater mutual interactions.

The IGO variables appeared to be similar for the students in the categories of minutes engaged in interaction and social bids. Doris and Trudy were different in storyteller interaction. Trudy initiated and average of 6.5 cycles compared to Doris's average of one cycle per 10 minute observation. Doris was more likely than the other two students to ignore bids during storyteller interactions. Peers initiated more cycles with Doris during storyteller interactions and with Trudy during interview interactions.

Two extreme IGOs are an alternative explanation for the differences between students. Trudy's high rate of being ignored by peers was discussed above, in one observation she was ignored 24 times. In no other observation was she ignored more than four times. Doris had a much higher rate of bids per cycle than Trudy in interview interactions. However, this category includes one observation where Doris went to a Fast Food Restaurant with some school peers and maintained one interaction cycle for 102 bids. Some differences can be explained by the low frequency of observations for some students in specific categories. However, it most cases, it appeared that the IGO variables distinguished among students and types of interactions.

Setting

There were four different setting environments that seemed to be significant in terms of the interactions that occurred. These were: (a) integrated settings (n=13); (b) segregated settings (n=18); (c) instructional settings (n=16); and (d) arranged settings (n=27). The integrated settings were those in which all of the potential interaction partners were non-disabled peers, either high school students or co-workers. The segregated settings were those in which the potential interaction partners were classmates or co-workers with disabilities. The instructional settings were those in which one of the teachers was the primary conversation partner. The arranged settings were those that had been arranged by project staff in order to observe the student and the primary conversation partner was the author or a research assistant. These last two settings were distinguished because the relationship between teacher and student could have effected the interaction and the knowledge of all the study questions and analysis could have effected the interactions with project staff.

Interaction Generalization Observations. The IGO variables are averaged according to setting and student in Table 4.12. Not surprisingly, students had the most limited interactions in segregated settings. The minutes engaged in interaction was the shortest and the

Table 4.12

Comparison of IGO Variables Across Settings and Across Students

	Settings			
Variables by Student	Integrated n = 14	Segregated n = 18	Instructional n = 17	Arranged n = 27
Minutes engaged in interaction	6.71	1.94	4.7	5.82
Doris	8.39	1.90	----	6.08
Trudy	5.90	.28	4.12	5.84
Wendy	6.24	3.81	5.53	5.13
Social bids	70.6	26.2	53.5	71.7
Doris	75.5	21.5	----	73.0
Trudy	60.5	28.0	42.0	74.3
Wendy	80.8	57.0	70.0	63.8
Student initiated cycle	4.0	4.4	5.7	4.1
Doris	3.2	3.9	----	4.2
Trudy	3.7	5.0	5.4	3.1
Wendy	5.2	57.0	6.1	5.4

(table continues)

Table 4.12 (Cont.)

	Settings			
Variables by Student	Integrated n = 14	Segregated n = 18	Instructional n = 17	Arranged n = 27
Student ignored peer bid	1.5	.2	.8	2.4
Doris	2.8	.3	----	2.8
Trudy	.8	0.0	.3	1.0
Wendy	1.2	0.0	1.4	3.6
Peer initiated cycle	2.4	2.1	2.1	4.2
Doris	2.2	1.8	----	4.9
Trudy	3.0	4.5	2.7	4.6
Wendy	1.5	1.5	1.3	1.8
Peer ignored student bid	3.1	1.7	2.0	.9
Doris	2.5	1.4	----	1.0
Trudy	5.5	5.0	2.4	.7
Wendy	.2	0.0	1.4	1.2
Bids per interaction cycle	16.7	3.6	7.8	10.4
Doris	32.1	3.3	----	11.9
Trudy	9.3	2.8	5.7	9.2
Wendy	12.2	6.1	10.9	8.7

Table 4.12 (Cont.)

	Settings			
Variables by Student	Integrated n = 14	Segregated n = 18	Instructional n = 17	Arranged n = 27
Time per interaction cycle	1.60	.28	.76	.88
Doris	3.25	.31	----	1.04
Trudy	.91	.03	.64	.73
Wendy	.99	.39	.94	.74

interaction cycles were shorter than those in other settings. Fewer bids were made during the observation and within each interaction cycle in segregated settings. It was surprising to note that students were less likely to ignore their interaction partners in segregated settings. This could be explained by the fact that the rate of bids made to the student was smaller.

Some differences were found in instructional settings. Less time was spent in interaction and there were fewer bids in instructional settings than in integrated or arranged settings. Additionally, the student initiated more of the interaction cycles in the instructional setting.

Project staff may have acted differently than other conversation partners in some ways. Project staff initiated interaction cycles about twice as often as other conversation partners. Project staff also ignored fewer student bids than other conversation partners. With the exception of bids per interaction and time per interaction, the level of performance on the rest of the variables were similar to those in integrated interactions. The interaction cycles were longer and consisted of more bids in integrated settings.

Student differences. Because of the different placement of the students, the proportion of the observations in different settings varied. Doris was unemployed at home for one phase and worked in a segregated environment for the other phases. She was observed in integrated settings four (13%) times; segregated settings 14 (45%) times; and arranged 13 (42%) times. Trudy was observed in integrated settings 6 (22%) times; segregated settings 2 (7%) times; instructional settings 10 (37%) times; and in arranged settings nine (33%) times. Wendy was observed in integrated settings four (22%) times; segregated settings two (11%) times; instructional settings seven (34%) times; and in arranged settings 5 (28%) times. The integrated settings for Wendy and Trudy were most often breaks at work. Doris participated in a few organized community events (e.g., a civic club picnic). Most of Doris's segregated interactions were at work. Trudy's and Wendy's took place at the high school. No interactions were observed among

Doris and teachers or other school staff. Workshop staff managed Doris's instruction there, while Trudy and Wendy interacted with the school staff regularly during vocational training.

There were some differences between students according to setting variables. Doris had longer interaction cycles and more bids per interaction cycle than the other two students in integrated settings. Trudy spent less time engaged in interaction but initiated more bids in the segregated settings than the other two participants. Wendy seemed to participate in longer social interaction cycles with more bids across settings than did the other students.

Type of interaction. There appeared to be an interaction between the setting and the type of interaction. Students were about twice as likely to engage in mutual interactions in integrated and in arranged settings (6 and 14 respectively) than in segregated settings (3 and 6 respectively). Four mutual interactions were observed in segregated settings compared to 13 reactive interactions. Mutual and reactive interactions were equally divided in the instructional setting (7 and 8). Interview and storyteller interactions were observed in arranged and integrated settings only.

Summary. These categories, type of interaction and setting, could explain some of the variability in the results of the interaction generalization observations in terms of the applied behavior analysis study. The students were observed in a variety of settings across the phases of the study. The settings could have influenced the type of interactions in which they engaged and their opportunities to perform social skills. Additionally, the settings were different because of the student access to certain types of environments. Students may not have had opportunities to practice using their skills.

Chapter 5

DISCUSSION

The discussion chapter is divided into four sections. First, the two applied behavior analysis studies are discussed. The results are summarized followed by a discussion of the implications, the limitations, and the suggestions for future research. The third section addresses the implications of the student descriptions and the content analysis. The final section is a discussion of the implications of this research project as a whole.

Social Skills Instructional Program

This program evaluated the generalization of social skills that were selected to receive reinforcement in unstructured leisure settings. Five strategies were employed to enhance generalization and maintenance of social skills: (a) general case instruction; (b) multiple exemplars; (c) prompting any appropriate response in practice conversations rather than a specific response; (d) fading reinforcement to natural conditions at the end of each instructional setting; and (e) selecting skills that would receive reinforcement in generalization sites. The instructional program was effective for teaching three women with severe disabilities twelve social interaction skills. Maintenance of the responses to instructional cases, presented in random order, was moderate and variable. All of the students demonstrated some generalization to the probe conditions. Generalization of skills with low baseline rates did not occur until after instruction on the target skill or instruction on a similar skill had been implemented. Generalization continued to increase during the Maintenance Phase. Interview respondents indicated that instructional procedures seemed to be socially valid.

Student performance on Interaction Generalization Observations (IGOs) demonstrated some improvement in student participation in social interaction. The IGO results did not indicate that the specific skills selected for instruction generalized to unstructured leisure settings. However, during the Intervention Phase, all three students showed an increase over baseline performance in the "minutes engaged in social interaction" and "social bids" per interaction. Additionally, Doris and Trudy showed an increase in "bids per interaction cycle" and "time per interaction cycle." These gains were maintained over the Follow-up and Second Intervention Phases, although the levels of increase varied across phases.

Doris and Trudy showed a greater level of improvement on more IGO variables than Wendy. This is not surprising when one compares the initial rates of performance. Wendy appeared to be more skilled in the Baseline Phase than the other two students. Doris and Trudy had a greater range for improvement.

The program was successful in demonstrating generalization to instruction-like cases and moderately successful in maintaining the skills. The generalization of the specific skills in unstructured leisure settings was not demonstrated. There was a concurrent increase in "social bids" and "minutes engaged in interaction," but the connection between general performance and the training program is difficult to demonstrate. The changes noted on IGOs are an example of "far" generalization (Borkowski & Cavanaugh, 1979). It is difficult to prove a relationship between the instructional program and response and stimulus generalization of skills across settings, time, and conversation partners. However, results did occur as predicted which is the method Drabman et al. (1979) recommended for demonstrating relationships in cases of "far" generalization. Also, these results are similar to other studies that incorporated the use of prompts and reinforcement of unspecified appropriate responding (Burney et al., 1977; Foxx et al., 1986; Haring et al., 1986; Hunt et al., 1988; Peterson et al., 1979). Final evidence of the relationship between the instructional program and the improved performance on IGOs is found in the social validation interviews. Respondents indicated that some of the student gains were perceived as significant in the generalization environments.

Interpretation of the results of this study are limited by four factors. First, the instructional package consisted of a number of strategies and techniques. There is no way to determine which of the procedures are critical for instruction, which for generalization, and which for maintenance.

Another limitation of the study is the contextual changes that took place during the course of the study. One change occurred between the target generalization sites used in skill selection and the environments actually used by students. Parents, teachers, and students participated in selecting target generalization sites, but most of the sites were not sites the students used in the Follow-up Phases. Unless the author arranged an observation, students did not use integrated shopping environments, restaurants, or recreational facilities with anyone other than family members (There was an exception to this a civic organization picnic that Doris attended. This was a special one-time event and Doris's invitation was arranged by the author for the purpose of completing an observation).

The study participants used the work break settings during all phases of the study, but some critical elements of the break setting changed after the Preliminary Phase of the study. The work break setting for selecting skills for Doris was the Chain Hotel, but during the study Doris was employed at the Workshop. The observations for Trudy and Wendy were conducted at the Franchise Motel, but during Preliminary Phase, the students from the high school and the teachers were disproportionately represented in the environment. In the observations in the Follow-up Phase and the second year of Wendy's Intervention Phase, Wendy and/or Trudy were usually the only persons with disabilities present. Thus, there was a greater proportion of co-workers present during the Intervention and Follow-up Phases than during the Preliminary Phase. Also no teachers participated in interactions in the Follow-up Phases as they had in Baseline and Intervention.

Changes were also made in instructional sites. Wendy received instruction at school and at two different times at the Franchise Motel. The turnover in instructional staff may also have influenced study results. Some of the changes may have served as unplanned multiple exemplars and actually may have enhanced generalization.

A third limitation is the effect that the author and research assistants may have had in serving multiple roles as instructors, interaction partners, and observers. Their knowledge of research questions and hypotheses may have influenced their behavior in interactions with the students.

A final limitation of the study is that the skills selected for instruction may not have been the most appropriate for the students. As discussed above the target generalization sites and the actual generalization sites differed. Additionally, it was difficult to find females who appeared to be in their early twenties to observe interactions in fast food restaurants. Most of the consumers in these environments were parents with children or consumers who appeared to be significantly older than the study participants. Then, when observing females of approximately the same age as the students, their interactions were predominately extending statements rather than initiations. Additionally, few initiations were observed in the break settings during the Preliminary Phase when most of the participants in the break room were disabled. Most of the initiations that were observed occurred in the shopping sites and were greetings. If observations could have been conducted in the break settings when only co-workers were present, other types of initiations might have been selected for instruction.

This study supports the need for further research. A replication of the study in a more stable environment would increase the level of credibility of the results. The use of a multiple-element design would assist in determining which of the methods in the instructional package were necessary for instruction of social skills and which were necessary to facilitate generalization.

Another issue to be addressed by the research regards the significance of the changes in student behavior. Research is needed to define "normal" or "appropriate" levels of social interaction. Observations of interactions among non-disabled individuals would be useful in establishing goals for student performance.

A final question for further research is whether opportunities exist for students to use the skills selected for instruction. Interactions could be analyzed to determine when conversation partners make bids that would be likely to elicit the target skills. Such analysis would validate the process for selecting skills for instruction and provide more information about the variables affecting generalization of social interaction.

"Loose" Training to Mediate Generalization

Doris participated in a second intervention to mediate generalization of social skills. Doris was selected for the follow-up study because she exhibited several problem behaviors in integrated community settings. It was hypothesized that a program to increase positive behaviors would result in a concomitant reduction in problem behaviors. Therefore, the "loose" training program focused on increasing positive behaviors rather than decreasing negative behaviors. The "loose" program was effective in increasing Doris's eye contact, responses to conversation partners, and the number of words per response. As long as the instructional procedures were enforced in some settings, generalization was maintained in other settings. When the instructional program was withdrawn, the gains in performance were not maintained in generalization environments. Additionally, validation interviews, IGOs, and fieldnotes indicated a reduction in Doris's problem behaviors.

Due to student absences, the program was not implemented on a consistent time schedule. Yet, the results indicate that generalization across environments could be maintained with minimal intervention. The program was easy to manage in community environments, requiring only a pencil and an index card. It usually took less than 10 minutes to implement. Continuation of the program on a variable schedule with reinforcement faded to Doris's pay schedule at the workshop demonstrated the potential to be a cost effective way to maintain improved responding in multiple environments.

The limitations to the "loose" training study included the design, the possible interaction between the intervention and the relationship between Doris and the researchers, and social validity. The study was halted after the withdrawal phase because of time constraints. A replication of the intervention results would have strengthened the study. However, the improvement of performance in target skills across settings enhances the credibility of the results.

Another problem with the study is related to the relationship among the researchers and Doris. The author had begun preparing Doris for withdrawal from the study at the end of the eighteenth month. Therefore, Doris was aware that the Intervention Phase was over during the last two observations. One of the reasons that the program may have been effective was the use of intermittent reinforcement. Because the schedule for implementation of the program was variable, a powerful schedule of reinforcement existed. During the second Baseline Phase, Doris knew that reinforcement would not be available in the future. This knowledge could have influenced the trend of performance during the final phase of the study.

A final limitation of this study is the question of social validity. The program was designed to "fit" Doris's environment. Reinforcement was faded to her pay schedule. The reinforcers were selected from the items that her earnings were ordinarily used to purchase. The "loose" procedure could have been implemented by family members when they went out with Doris to facilitate generalization. While the parent approved the method prior to implementation, she indicated that she would not implement the program with Doris at the end of the study. This indicates that the study may not have been socially valid for implementation in this family.

This study indicated that "loose" training can be used to successfully facilitate generalization of social skills across environments. Replication with other participants in different contexts, with different skills, and with stronger designs are needed. Also, research with the addition of a self-monitoring component would also be useful. This strategy was attempted with Doris, but she chose not to participate. Even though she had preferred to monitor her performance in the social skills instructional program, she would not carry the pencil and index card in community settings. The use of self-monitoring could simplify implementation of the program. Further research is needed to determine if self-monitoring in this context is effective.

Student Descriptions and Content Analysis

Doris

Interview respondents described Doris as having variable performance in social interactions. She preferred interactions with persons with whom she was familiar. Her interactions were described as brief and responsive. Her language was difficult to understand and she often supplemented her verbal communication with gestures and other motor responses.

There were some disagreements among data sources regarding Doris's descriptions. Interview respondents disagreed on whether Doris was a "loner" or enjoyed social interactions. Doris was described as responding to others, but not initiating even though she initiated 95% of the interaction cycles in which she was observed and she initiated slightly over half of the topics discussed in observations.

Another disagreement existed between interview respondents and the research staff. The summaries developed by the author and research assistants repeatedly included research questions and hypotheses regarding Doris's level of receptive language. There were some clear indications that Doris did not understand time markers. Additionally, in some observations and fieldnotes, Doris did not seem to understand the author or research assistants when they explained where they were going and what the purpose of the outing was. In one observation during the Preliminary Phase, Doris complained to Joyce of being hungry. Joyce told Doris that she had cookies in her purse downstairs that Doris could have. Joyce attempted several different wordings to communicate the information to Doris. Finally, when Joyce got the cookies and gave them to Doris, Doris appeared to be surprised. None of the interview respondents confirmed this language deficit. Doris's use of "yeah" and "no" and discontinuing interactions in apparent anger may have masked her lack of understanding. However, it is also possible that discussion among the author and research assistants influenced each individual's conclusions.

Another point of interest is the perceptions of interview respondents regarding the behaviors described as negative. These included "attention-seeking" or "controlling" behaviors, and "flirting." Wanting to control one's environment or have one's own way and looking at members of the opposite sex are probably not unusual behaviors for a woman in her early twenties. If one considers the level of choices available to Doris and activities in which she participated when combined with her limited language abilities for expressing her wishes and needs, it is not surprising that Doris used whatever skills she had to gain some control of her environment. Doris ran away, pretended to choke, and lay on the floor in stores. Most would agree that these were not appropriate behaviors. However, the interview respondents seemed to indicate that the motives for these behaviors may not have been appropriate either.

Doris's limited social abilities probably prevented her from being particularly reinforcing to interaction partners. Storey and Gaylord-Ross (1987) suggest that this may be one explanation for limited social interaction among individuals with disabilities. The author and research assistants noted personal reactions of distress or discomfort on some outings with Doris, particularly when she ran away, lay down, insisted on having purchases made for her, or refused to interact. Doris's lack of ability to reinforce the social bids of others may have influenced their perceptions of her behavior as inappropriate.

Trudy

Trudy was perceived by others as being appropriate, interactive, likeable, friendly, and helpful. Some problem behaviors (e.g., resistance to change and irrelevant responses) were mentioned, but not with the frequency or emphasis that Doris's problem behaviors were mentioned. The descriptions of Trudy seemed to indicate that respondents perceived her in a more positive way than Doris was perceived.

There were some interesting contradictions in the data. Trudy's stubbornness was not perceived as being as important as Doris's even though Trudy's resistance resulted in her being temporarily fired, having her salary withheld for not working, and discontinuing a community-based program for use of a hair salon. Yet, it was not considered a significant problem by most respondents.

The irrelevance of Trudy's responses could also be questioned. They may not have been irrelevant for Trudy. For example, the times she stated often appeared to be out of context, but were significant times for Trudy. Ten o'clock was her first coffee break; 12:00 was lunch time; and 2:00 was when the bus came for her when she was in school. Her listing of her daily routines was sometimes confusing to interaction partners, but turned out to be accurate. Trudy's activities after "work" at the Franchise Motel were very similar to her activities at "home" at the Truck Stop Motel. It is also very likely that when Trudy talked about needing to go home to do things and needing to "rest her bones" that she was communicating a real need rather than perseverating on the same subject, when one considers her actual schedule.

It is also interesting that even though interview respondents noted Trudy's lack of variety in topics as a problem they sometimes initiated the "regular" topics. Trudy's co-workers would enter the lunchroom and ask if Trudy had a bologna and cheese sandwich again. Co-workers were also observed to begin interactions about coffee.

Wendy

Interview participants described Wendy as talkative, appropriate, interactive, attentive, and likeable. She talked too much, discussed personal things, was overly familiar, and interrupted others at work and in conversation. Because she was perceived as likeable and friendly, Wendy, like Trudy, was probably reinforcing to her conversation partners despite her skill deficits.

One question arose from Wendy's descriptions. Some of the topics that interview respondents considered inappropriate for Wendy may not have been considered inappropriate for other co-workers. People who work together and eat lunch together on a regular basis are likely to share information about their friends and families. On one occasion, the housekeeping staff was observed discussing some extremely personal topics during a lunch break. They were reading and discussing a magazine article on sexual behaviors. If Wendy had been present at the observation, they may have regarded her participation as inappropriate.

Also, the interview data indicated that Wendy's behavior was variable across environments. Wendy demonstrated aggressive behaviors at home with the family. This type of behavior was not mentioned or observed during the entire 18 months of the research.

Content Analysis

Four types of interactions were observed: (a) mutual; (b) storytelling; (c) interviewing; and (d) reactive. The observations took place in a variety of settings and with a variety of persons present. These settings were also divided into four categories: (a) integrated; (b) segregated; (c) instructional (i.e., teacher or other school staff were the primary conversation partner); and (d) arranged (i.e., the observation was arranged by project staff for the purpose of completing an observation and a project staff member served as the primary conversation partner).

Students had the most opportunity to interact in integrated settings. This replicated the results of earlier work by Brinker & Thorpe (1984) with school-aged populations. Individuals with disabilities receive more opportunities to interact and more of their social bids will be reciprocated in environments with non-disabled peers than in environments where the majority of participants have disabilities.

Most of the interactions were reactive or mutual. The mutual interactions and the interview interactions appeared to facilitate the most positive social interactions. The reactive and storyteller bids did not appear to enhance student performance. Student bids were most likely to be ignored in reactive and storyteller interactions.

Analysis of the interactions demonstrated that only 12 (16%) of the observations took place in integrated environments that had not been arranged by project staff. This indicates that although the school program was designed to be integrated and community-based, the actual opportunities for students to interact with non-disabled peers was limited. Most of the observations were arranged or instructional. Instructional staff initiated interactions less often than other conversation partners. Possibly the teachers provided the students with more opportunities to interact. In contrast, the author and research assistants participated in more mutual interactions, but the project staff may have provided fewer opportunities for students to initiate.

The conclusions regarding the content analysis are limited by confounding factors. First, performance on generalization observations were variable and had a broad range. This could have resulted in a few observations disproportionately weighting the average for the category. Secondly, the complexity and the interactive nature of social behaviors make it difficult to draw conclusions from the observations. For example, when evaluating the limited number of interaction topics, one could conclude that the students talked about the same topics repeatedly because interaction partners modeled initiations of the topics and reinforced the student use of the topics. The opposite conclusion is just as plausible, the conversation partners discussed the same topics repeatedly with the students because they were the topics in which the students were likely to extend interactions.

Further research is needed to examine the interactions in the observations. Several questions are suggested by the analysis:

1. What types of bids should interaction partners make that facilitate increased student participation?
2. What types of bids are the most successful for students to maintain interactions?
3. How did the perceptions of conversation partners influence the interactions with the students?
4. How does the performance of individuals with severe disabilities in social interactions compare to the performance of non-disabled individuals?
5. How does the context (e.g., program philosophy, relationships among researchers and participants) of the study interact with the observed social interactions?

Other Issues and Implications

Four issues that were related to the all three of the studies are discussed further. One issue relates to the quality of life of the individual study participants and the limited nature of their social network. Another issue that needs to be addressed is the examination of how the stated goals, values, and philosophies of a school district are reflected in program implementation and how the goals and values are affected by the practical problems inherent in community-based instruction. A third issue is the interaction between the perceptions others have of the students and their disability and their interactions with the students. The final issue addressed in this discussion is the relationship between the complexity of the interactions, the design, and the methodology in this study and the interpretation of the results of the study.

Quality of Life

One pervasive factor that could have influenced the students' ability to participate in social interactions is related to their quality of life. Basically, Doris's and Trudy's total network was their work and family environment. Work was the only activity in which they regularly participated. Trudy discussed some friends from the Truck Stop Restaurant and Motel and Doris knew some of her neighbors in the trailer park, but neither woman appeared to engage in activities on a regular basis with these other individuals.

Wendy participated in more activities, but only with her family. Her network of friends appeared to be school staff and co-workers. All three women seemed to have few choices in their lives and lacked close social relationships that persisted over time. Also, their participation in leisure activities and in integrated community environments was very limited.

These findings of limited opportunities is not unusual. Kennedy, Horner, & Newton (1989) completed a descriptive analysis of interaction patterns among adult group home residents with severe disabilities. They found that family members were disproportionately represented in social contacts and that the residents had few durable friendships. Rosen and Burchard (1990) compared the social networks of individuals with mild mental retardation to non-disabled individuals. They found that adults with mental retardation had a greater proportion of interactions with care providers and staff compared to non-disabled adults who had a greater interactions with friends. Individuals with mental retardation were more likely to perceive family members as being supportive and tended to select staff as their most supportive relationships. This contrasted with non-disabled participants who chose friends as their most supportive contacts. Sullivan, Vitello, and Foster (1987) also found limited opportunities for building relationships among men with moderate disabilities residing in a group home. So the limited social circle of the participants in this study was not unusual, but was disheartening. The lean social environments of the students could be expected to negatively affect generalization of social interaction skills.

Interview respondents were aware that the students needed to participate in more activities and appeared to be aware of the students' needs for a broader social network. One of the instructional program's strengths, frequently cited in the social validation interviews, was that the project staff "did things" with the students. Participation in the study created more opportunities for the students to interact and provided more topics for them to discuss. These outcomes were perceived as strengths. Additionally, interview respondents identified "transportation" and "participation in activities" as items that were needed in order for students to participate more fully in social interacitons.

Unfortunately, increased opportunities for interaction were not an intended effect of the study. This result occurred because it was not possible to complete observations in unstructured leisure environments without creating the opportunity. The "outings" were a result of the limited social environments of the students. This aspect of the research supports the need for the development of social networks during school years. Active intervention in the development of friendships and social networks may be a more critical need than instruction to increase performance of social skills (c.f. Haring, 1991; Vandercook, York, and Forest, 1989).

Program Values and Goals

The research results also could have been affected by some characteristics of the school program. This school program was selected for the research because of its adherence to recommended best practices. The students attended integrated school programs; they received systematic instruction in functional skills; transitions were planned; older students received increasing proportions of their instruction in the community; etc. However, at the individual student level, the break-down of some aspects of service delivery was observed.

One of the rationales for participation in integrated settings is that it provides students with the opportunity to develop social networks with non-disabled peers and the opportunity to develop social skills from age-appropriate role models. However, this did not seem to be occurring in the program in which the students were enrolled. The women were actually a few years older than the other students at the high school. They did not regularly participate in the high school program and they spent the majority of their school day off-campus at community sites. The high school peers who participated in Doris's instruction and IGOs were recruited at the request of the author. This level of interaction with high school students was not typical of the program. Also, most of the co-workers at the Franchise Motel were not age-appropriate. Most of the co-workers appeared to be older than the study participants. Several of the co-workers had adult children. Another problem with the implementation of a truly integrated program was the use of the Franchise Motel as a training site for three students at a time. Interview respondents employed at the Motel reported that they did not get to know Trudy and Wendy until they worked by themselves. One co-worker reported that she avoided the laundry room in the mornings, when instruction was being implemented there, because it was so crowded. Doris spent the majority of the school year in a segregated work environment despite being enrolled in an "integrated" school program.

Also, the focus of the instructional program was on vocational skills. By the sixth month of the study, all three of the students had been withdrawn from all other instruction (e.g., community, domestic, and leisure programs). Social skills were not a priority for the students. Two teachers, Joyce and Dave, and their supervisor, Debby, acknowledged that social skills were not as important as work skills for the students at this time, even though research indicates that social skills are needed for students to be successful in vocational work settings. The only planning for social skills intervention by the school staff was for Wendy. At a staff meeting, attended by the author, implementation of a response cost procedure to reduce her interactions with strangers was discussed. It had not been implemented by the end of this research study. Gaylord-Ross, Stremel-Campbell, and Storey (1986) observed similar phenomena in other settings. They reported that social skills instruction is not likely to occur in programs where the focus of instruction is on non-leisure skills.

The rate of staff turn-over was another characteristic of the school program than could have influenced the results of the study. Both Bob and Dave acknowledged that they had difficulty in monitoring student performance and keeping up with all of their individual instructional programs. For example, Trudy had not learned to manage her feminine hygiene needs independently. Dave was unaware of this as an instructional need, until Trudy came to him for assistance. The management of a large community-based program where students are receiving instruction at many different sites and where instruction is often provided by assistant teachers is difficult. It is understandable that it would take a new teacher some time to become familiar with all of the individual student programs and needs, especially when they are not interacting with the students in instructional environments. It is unfortunate that the turnover was so rapid during the 18 months of the study.

This commentary on the school program is not intended to be a condemnation of the program. In fact, since study implementation, the district has taken steps to improve the program. They are returning students to home school districts so that they will receive instruction in their own communities. Also they have moved the students over the age of 18 to a more age-appropriate setting. It is fair to note that at the time of the study, students were not participating in truly integrated environments; social skills instruction was not a priority; and staff turnover may have influenced instruction. These factors may have interacted with the instructional program and performance during IGOs to influence the results of the study.

Perceptions of Interaction Partners

A third issue of interest in the study is the questions of how interaction partners' perceptions may have influenced the social interactions. The interview respondents did not view social behaviors as splinter skills. They responded to questions about student performance with global terms such as "friendly," "likeable," and "does good." Two interview respondents noted that they could not separate student performance from personality. Sometimes the respondents would initially respond to questions about social interactions with comments about work or self-care skills.

Interview respondents' difficulty separating the social skills from the whole person is not atypical. Rathjen and Foreyt (1980), in the introduction to their book on social competence, state "culture tends to view social abilities as a function of 'personality.'" They further state that this general "mystically acquired quality" allows people to be dichotomized into two groups, competent or incompetent. Some of the interview respondents indicated that they perceived the students as being in the incompetent group. Some of the behaviors that were clearly disapproved of in Wendy and Doris are probably not behaviors outside the range of "normal" behavior. In fact, in one of the few studies that has compared social behaviors of workers with disabilities and their non-disabled co-workers found that the behaviors were not statistically different (Storey & Knutson, 1989). The reported disapproval of student behaviors may be an artifact of the perception of the students as more different than similar to the respondents or the perception of the students as members of the incompetent group.

A competing explanation of the perception of students by interview respondents is that of reinforcement (Storey & Gaylord-Ross, 1987). The interview respondents may have described some student behaviors as negative because they were not reinforcing qualities in their interactions. The interview respondents appeared to perceive of Trudy and Wendy as more reinforcing than Doris. The reinforcement power of students' social performance may have influenced results of the interview data.

Combined Methodology

The final issue for discussion is the complexity of the study. The attempt to employ applied behavior methodology and naturalistic inquiry at the same time may have left the research open to the limitations of both models. The attempt to implement the applied behavior methodology in applied settings with numerous staff changes and environmental changes is a threat to the internal validity of the instruction program results. However, the use of the applied settings also enhances the generalizability of the results. Another example is the relationships that developed among the study participants, the author, and the research assistants. The relationships may have been a confound to the quantitative analysis of the IGOs, but the relationships also contributed to the depth of the qualitative data that the team were able to collect.

It is arguable whether it is even possible to conduct research with mixed methodology. Lincoln & Guba (1985) argue that one cannot be in two philosophical paradigms at the same time. If one is doing research in an empirical paradigm, it is impossible to conceive of the study in a naturalistic manner and vice-versa. Certainly, one lesson from the development of the IGOs and the resulting reliability is that one cannot see everything at the same time. When one is focused on discrete behaviors, one misses the interaction of multiple influences. When one concentrates on the interaction between variables, one may miss simple effects in an interaction.

Overall, the difficulties in the use of combined methods is overcome by the advantages. The data collected in the applied behavioral analysis studies would have had less meaning if separated from the complex environment in which they occurred. The attempts at sorting out all the complex interactions in the environments where they occur is essential for the development of more effective interventions for social interactions in individuals with severe disabilities. Successful interventions should result in changes in social networks as well as changes in student behavior.

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APPENDIX A

LETTERS AND PARTICIPANT CONSENT FORMS

Contents:

- Letter to Parents Describing Study
- Parent Permission Form
- Student Permission Form

Dear parent name

The purpose of this letter is to inform you of a grant received by the Department of Curriculum, Instruction and Special Education at the University of Virginia. This project is called Generalization and Maintenance of Social Skills to Post-School Environments in Adults with Disabilities. One of the main tasks of this project is to design a program for teaching social skills which will be used by students after graduation. This should increase your child's ability to participate in employment and recreational activities.

I am a doctoral candidate at the University of Virginia and will be directing the project. I will work with student name's teachers, to develop the social skills training program. The Principal Investigator for the grant is Dr. Martha Snell, Assistant Professor.

In order to show that the teaching program is effective, we will need to report results of the program with student performance data. The project will use the records kept by teacher name and teacher name to study the social skills program. No names will be released with project reports.

In addition to student performance data collected by the teachers, grant staff would like to observe students in the year following graduation to determine if they are actually using the social skills they learned in the school program. Observations would be conducted in social settings during August, January, and March. Each observation session will last only 10 minutes and will be planned not to interrupt the student. This information will also be kept confidential.

We would like your son to participate with your permission. Teacher name will be calling you this week to schedule an appointment with us so that we can explain the project in greater detail and answer your questions.

Sincerely,

Leslie Farlow,
Project Director
Social Skills Project

SOCIAL SKILLS GENERALIZATION PROJECT

PERMISSION FORM

I hereby give permission for the release of the written teaching programs (instructional formats) and student performance data involving ________________ (son or daughter) to the Social Skills Generalization Project staff under the direction of Dr. Martha E. Snell at the University of Virginia. I understand that my child's name will not be released with this information.

Date ____________________________________

Signature ____

I also give permission for project staff to observe my son or daughter in the following settings:

1. ____
2. ____
3. ____
4. ____

Signature ____

RECORD OF STUDENT CONSENT

Student Name	Method of Explanation	Method of Affirmation

APPENDIX B

INTERVIEW GUIDES AND SUMMARY FORMS

Contents: Parent Interview, Pre-Intervention
Parent Interview, Post Intervention
Teacher Interview, Pre-Intervention
Teacher Interview, Post-Intervention
Non-disabled Peer Interview Pre-Intervention
Supervisor and/or Co-Worker Interview, Post-Intervention
Interview Summary--Student Description
Interview Summary--Skills Rating
Skills Rating List--Pre-Intervention
Skills Rating List--Post Intervention

Parent Interview

Pre-Intervention

1. Please describe some places where __________ interacts with non-disabled peers.

2. Describe what _________________is like during social interactions there.

   Probe: Describe the ways _________________ participates in social interactions?

   Describe how ________________ begins interactions or usually responds to others who do?

   Please describe an example of a typical interaction--what was said and done?

3. What are the strengths ___________________ has in these situations?

   Probe: What does _____________________ do especially well? What do you think _____________ does that makes it easier for her to participate in social interactions?

4. What kinds of needs does __________________ have to be able to participate in social interactions more fully?

   Probe: What kinds of social skills would you like ___________________ to learn?

   What do wish she/he could do better?

Parent Interview

Post-Intervention

1. What sorts of places in the community does _______ use?

2. Please describe some places where __________ interacts with non-disabled peers.

3 Describe what _________________is like during social interactions there.

   Probe: Describe the ways _________________ participates in social interactions?

   Describe how ________________ begins interactions or usually responds to others who do?

   Please describe an example of a typical interaction--what was said and done?

4. Does ___________ act differently when she is around non-disabled friends than when she is with other friends with disabilities? Please explain these differences.

5. What are the strengths ___________________ has in these social situations?

   Probe: What does _____________________ do especially well? What do you think _____________________does that makes it easier for her to participate in social interactions?

   What kinds of things does ___________ do that encourages others to interact with her?

6. What kinds of needs does __________________ have to be able to participate in social interactions more fully?

Probe: What kinds of social skills would you like ___________________ to learn?

What do wish she/he could do better?

7. Have you seen changes in _____________________ social interactions in the past year? Describe them.

8. What do you think may have brought about these changes?

9. In this particular study, we observed people interacting in places where ____________ might go over the next year. This included work places, restaurants, shopping malls, and parks and recreation activities. Then we taught _____________ to perform some of the social skills we observed there.

Doris: We taught Doris at school before she caught the bus. We taught her to begin conversations with people who she knew and who were not working. We taught her a variety of greetings to get a conversation started. Then we taught her to continue conversations by asking questions, stating her opinion about a variety of topics (e.g. music, movies, work, exercise, food, clothes, etc.), and listening to others and repeating back what they said. Then we also taught her to carry on conversations about these topics with different people in her environment. During the conversations, we reminded Doris to maintain eye contact and speak clearly.

Trudy: We taught Trudy at the Franchise Motel, during her break time. We taught her to begin conversations with people who she knew, who were not working, and people who were not talking. We taught her a variety of greetings to get a conversation started. In order to help her to continue conversations, we taught her to state her opinion about a variety of topics (e.g. music, movies, work, exercise, food, clothes, etc.), and to ask general questions to begin conversations. Then we also taught her to carry on conversations about these topics with different people in her environment. During the conversations, we reminded Trudy to maintain eye contact, keep her hands down, and attend to who she was talking.

We observed ____________ to determine if she was using the skills we were teaching in school. In order to observe, I or another research assistant would accompany ______________ and take notes on her behavior.

Doris was observed at work, at restaurants, and shopping.

Trudy was observed at work, at the hair dresser, and at restaurants.

Wendy was observed at work and at restaurants.

Describe what you think are the positive and negative aspects of ___________________'s participation in this experiment.

10. Do you think ____________________'s teacher should continue to use this social skills training program with other students? Why or why not?

11. What types of assistance do you feel _____________ might need in the upcoming year in order to develop friendships and spend her leisure time in enjoyable ways.

I would like to keep in touch with you until next February for the study. I will want to talk with you two more times and would like to do things with _________ and to make more observations. First, I want to let you both adjust to her new life style following graduation. I will be calling in July or August.

Teacher Interview

Pre-Intervention

1. Describe ________________'s social interactions in unstructured settings.
2. What are the strengths __________________ has in these situations?
3. What kinds of social skills does __________________ need to learn in order to participate in social interactions more fully?

Teacher Interview

Post-Intervention

1. Describe the opportunities you have to observe ________ in social interactions.
2. Describe ________________'s social interactions in unstructured settings?
3. What are the strengths ________________ has in these situations?
4. What kinds of social skills does ________________ need to learn in order to participate in social interactions more fully?
5. What aspects of the social skills training program do you think were important or relevant to the student?
6. What aspects do you think may not have been important or relevant?
7. I will list the components of the training program. Please comment on the usefulness of each component.
    a. Observations in generalization settings to select skills to train.
    b. Use of a general case strategy--the development of cases to solicit the skills for baseline.
    c. Use of a general case strategy--training multiple examples of stimuli and responses for each skill.
    d. Use of multiple peers.
    e. Use of time delay as a training strategy.
    f. Use of specific feedback on performance.

   g. Maintenance.

   h. Practice conversations.

   i. Use of prompts during the practice conversations.

8. Will you continue to use this kind of program to train social skills? Why or why not?

9. What changes would you make in the program or recommend to other teachers?

10. What are the types of strategies you have used to facilitate the development of social skills?

11. What have _______________ social skills goals been in the past?

12. What are some ways you think that the skills in the _____________ learned in the social skills training project may effect her interactions in the future?

Non-disabled Peer Interview

Pre-Intervention

1. Describe the types of social interactions that occur here.

   Probe: When and where do people socialize?

   What do they talk about?

   Describe an interaction you have observed here.

2. What social skills are important to have here?

   Probe: Describe some interactions you may see here every day.

3. What types of behavior might cause someone to be excluded or left out of interactions?

   Probe: Tell me about a time someone was excluded here. What was that person's behavior like?

4. Here is a list of interactions we have observed here. Please comment on those you feel are appropriate here and those which someone would need to know to participate in a social interaction here. Now comment on those you feel are not important.

Supervisor and/or Co-worker Interview

Post-Intervention

1. Describe the type of interactions you have with ________________.

2. Describe what ________________ is like during social interactions here.

   Probe: Describe how ________________ participated in social interactions?

   How does ________________ typically begin interactions or usually respond to others who do?

   Please describe an example of a typical interaction-- what was said and done?

3. What are the strengths ________________ has in these situations?

   Probe: What does ________________ do especially well? What do you think ________________ does that makes it easier for her to participate in social interactions?

4. What kinds of needs does ________________ have to be able to participate in social interactions more fully?

   Probe: What kinds of social skills would you like ________________ to learn?

   What do think she needs to do better?

5. Have you noticed any changes in ________________ interactions in the past year? Describe them.

6. In the social skills project ______________ was trained to begin social interactions with individuals who were not working, whom they knew, and who were not talking to someone else. She was taught a variety of different greetings to begin interactions. She was also taught to state her opinion about a variety of topics, to ask questions, to listen to the answer and comment on it, and to listen to a speaker and repeat back what they said. _________ was also taught to make eye contact when she talked to someone, not to make stereotypic hand movements, and to speak clearly and in audible tones.

   Do you think these are skills that are useful to _______ in this setting?

   In what ways are the skills relevant in the situations where you know the student?

7. Have you noticed ______________ using any of these skills? Please describe the situation.

8. The project consisted of several components. Please comment on the appropriateness of the component for training the student social skills.

   a. Use of a variety of cases to illustrate social skills.

   b. Practicing conversations with assistance.

c. Use of prompts and reinforcement which were faded over time.

d. Giving the student feedback on her performance.

9. Were you present during any of the generalization observations?

    a. How do you think the observations effected the student?

    b. How do you think the observations effected other people in the student's environment?

10. Did you participate in the practice conversations?

    a. Describe your impressions during the prompting part of the conversations.

    b. Do you think you behaved differently during the prompting and taping than at other times?

    c. Describe these differences.

    d. Do you think ______________ behaved differently during taping and prompting?

    e. Describe these differences.

11. Do you think ________________ teacher should continue to the social skills training program?

12. What recommendations would you make to teachers using the program?

Interview Summary--Student Description

Person Interviewed: ______________________________

Student discussed: ______________________________

Relationship of participant to student: ____________

Interviewer: ______________________________

Location of interview: ______________________________

Phase: ____________ Date: ____________ Time: ________

Approved Summary ______________________ Date: ________

Student Characteristics:

Student Strengths:

Student Needs:

Changes noted in student behavior in the past year:

Relevance of skills:

Comments on training program:

Recommendations for the program in the future:

Other:

Interview Summary--Target Skills

Person Interviewed: ______________________________

Interviewer: ______________________________

Setting Described: ______________________________

Target Student: ____________________

Location of Interview: ____________________ Time: ____

Date: __________ Approval of Summary: ____________________

Needed Social Skills:

Problems:

Skills Rating List

District County High School Site

Person Interviewed: ______________________

Target Student: ______________________

Interviewer: ______________________

Date & Method: ______________________

Interviewer Instructions:

To the parent: I would like to ask you some more questions about your daughter's social skills. I want to know if you think the skills we have selected to teach are important to your daughter and how well you think your daughter can do the skills now. This should take 10 or 15 minutes of your time. I will tell you the skills that have been targeted for training in the social skills program. Then I will ask you if the think the skill is important for your daughter to learn and how well she performs the skill now.

To the teacher: I would like to ask you to rate each student's ability to perform each target skill. I will say the skill to you and you tell me how well you think they typically perform the skill.

For each skill say: Do you think _______ (student) being able to ______(skill) is not at all important, useful, but not important, important, or essential?

Then: Do you think ______(student) does not perform this skill, performs the skill, but with mistakes, performs the skill correctly sometimes, performs the skill correctly about half the time, or performs the skill correctly most of the time?

Code:

Importance: 1--Not at all important
2--Useful, but not important
3--Important
4--Essential

Performance: 1--Does not perform the skill
2--Performs the skill, but with mistakes
3--Performs the skill correctly sometimes
4--Performs the skill correctly half of the time
5--Performs the skill correctly most of the time

Say: These skills are for when to begin an interaction.

1. Distinguish between when a co-worker is at work or on a break to begin a social interaction

Importance:	1	2	3	4	
Performance:	1	2	3	4	5

2. Know to talk to people she knows and not talk to strangers

Importance: 1 2 3 4

Performance: 1 2 3 4 5

3. Wait for a pause in conversation before speaking (or not to interrupt others)

Importance: 1 2 3 4

Performance: 1 2 3 4 5

Say: Now, these skills include things your daughter could do to increase the amount of her interactions and the appropriateness of social interactions. They will extend social interactions with others.

4.a. Return greetings

Importance: 1 2 3 4

Performance: 1 2 3 4 5

b. and add another statement to extend the interaction

Importance: 1 2 3 4

Performance: 1 2 3 4 5

5.a. Ask questions

Importance: 1 2 3 4

Performance: 1 2 3 4 5

b. and wait for the answer, then comment on the answer

Importance: 1 2 3 4

Performance: 1 2 3 4 5

6. Answer questions and add another comment or question to extend the interaction

Importance: 1 2 3 4

Performance: 1 2 3 4 5

7. Express personal opinions about topics

Importance: 1 2 3 4

Performance: 1 2 3 4 5

8. Give simple directions to clarify misunderstandings

Importance: 1 2 3 4

Performance: 1 2 3 4 5

9. Repeat what a speaker has said and add new information to extend the interaction.

Importance: 1 2 3 4

Performance: 1 2 3 4 5

10. Make introductions

Importance: 1 2 3 4

Performance: 1 2 3 4 5

11. Use please, thank you, and excuse me

Importance: 1 2 3 4

Performance: 1 2 3 4 5

12. Combine these skills to take part in conversations, taking at least 4 turns

Importance: 1 2 3 4

Performance: 1 2 3 4 5

Say: These next skills are useful for ending conversations.

13. Respond when others end a conversation by saying something like "good-bye"

Importance: 1 2 3 4

Performance: 1 2 3 4 5

14. End conversations after the other person has stopped talking or when an event (like a break from work) is over.

Importance: 1 2 3 4

Performance: 1 2 3 4 5

Say: These other skills may occur together with some of the skills we have already talked about.

15. Speak in an audible volume, but not too loud

Importance: 1 2 3 4

Performance: 1 2 3 4 5

16. Smile when having a conversation (Trudy and Doris)

Importance: 1 2 3 4

Performance: 1 2 3 4 5

17. Talk to others and not to oneself (Trudy and Doris)

Importance: 1 2 3 4

Performance: 1 2 3 4 5

18. Not repeat the same phrases or topics or what others said (Trudy and Wendy)

Importance: 1 2 3 4

Performance: 1 2 3 4 5

19. Look at the person you are speaking to

Importance: 1 2 3 4

Performance: 1 2 3 4 5

20. Stand close to and facing the person you are speaking to

Importance: 1 2 3 4

Performance: 1 2 3 4 5

21. Shake hands and then stop (Wendy)

Importance: 1 2 3 4

Performance: 1 2 3 4 5

Skills Rating List

Post Intervention

Person Interviewed: ______________________

Target Student: ______________________

Interviewer: ______________________

Date & Method: ______________________

Instructions for independent completion:

The following Rating List includes some of the skills the student has been working on this past year. Please indicate the choice which best describes student performance you have observed. The checklist should take about 10 minutes to complete.

Check "Does not perform the skill at all if you have never seen the student attempt the skill."

Check "Attempts the skill, but makes mistakes" if the student tries, but never performs the skill correctly. For example, a student who waits for pauses in conversation before speaking, but then is echolalic or a student who often expresses opinions, but shouts when he does so.

The next three choices are skills you have seen the student perform correctly on some occasions.

Interviewer Instructions:

To the parent: I would like to ask you some more questions about your daughter's social skills. I will read to you a list of skills that we have observed to be useful in taking part in conversations. Some of these skills are skills we taught your daughter this year. I will ask you to rate how well you think your daughter performs the skill now. This should take 10 or 15 minutes of your time.

To the teacher: I would like to ask you to rate each student's ability to perform each target skill. I will say the skill to you and you tell me how well you think they typically perform the skill.

For each skill ask: Do you think ______(student) does not perform this skill, performs the skill, but with mistakes, performs the skill correctly sometimes, performs the skill correctly about half the time, or performs the skill correctly most of the time?

Say: These skills are for when to begin an interaction.

1. Distinguish between when a co-worker is at work or on a break to begin a social interaction

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

2. Know to talk to people she knows and not talk to strangers

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

3. Wait for a pause in conversation before speaking (or not to interrupt others)

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

Say: Now, these skills include things your daughter could do to increase the amount of her interactions and the appropriateness of social interactions. They will extend social interactions with others.

4.a. Return greetings

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

b. and add another statement to extend the interaction

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

5.a. Ask questions

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

b. and wait for the answer, then comment on the answer

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

6. Answer questions and add another comment or question to extend the interaction

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

7. Express personal opinions about topics

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

8. Give simple directions to clarify misunderstandings

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

9. Repeat what a speaker has said and add new information to extend the interaction.

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

10. Make introductions

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

11. Use please, thank you, and excuse me

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

12. Combine these skills to take part in conversations, taking at least 4 turns

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

Say: These next skills are useful for ending conversations.

13. Respond when others end a conversation by saying something like "good-bye"

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

14. End conversations after the other person has stopped talking or when an event (like a break from work) is over

_____ Does not perform the skill at all
_____ Attempts the skill, but makes mistakes
_____ Performs the skill correctly sometimes
_____ Performs the skill correctly half of the time
_____ Performs the skill correctly most of the time

Say: These other skills may occur together with some of the skills we have already talked about.

15. Speak in an audible volume, but not too loud

_____ Does not perform the skill at all
_____ Attempts the skill, but makes mistakes
_____ Performs the skill correctly sometimes
_____ Performs the skill correctly half of the time
_____ Performs the skill correctly most of the time

19. Look at the person you are speaking to

_____ Does not perform the skill at all
_____ Attempts the skill, but makes mistakes
_____ Performs the skill correctly sometimes
_____ Performs the skill correctly half of the time
_____ Performs the skill correctly most of the time

DORIS:

16. Smile when having a conversation

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

17. Talk to others and not to oneself

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

TRUDY:

16. Smile when having a conversation

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

17. Talk to others and not to oneself

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

18. Not repeat the same phrases or topics or what others said

_____ Does not perform the skill at all
_____ Attempts the skill, but makes mistakes
_____ Performs the skill correctly sometimes
_____ Performs the skill correctly half of the time
_____ Performs the skill correctly most of the time

20. Stand close to and facing the person you are speaking to

_____ Does not perform the skill at all
_____ Attempts the skill, but makes mistakes
_____ Performs the skill correctly sometimes
_____ Performs the skill correctly half of the time
_____ Performs the skill correctly most of the time

WENDY:

18. Not repeat the same phrases or topics or what others said

_____ Does not perform the skill at all
_____ Attempts the skill, but makes mistakes
_____ Performs the skill correctly sometimes
_____ Performs the skill correctly half of the time
_____ Performs the skill correctly most of the time

21. Shake hands and then stop

_____ Does not perform the skill at all

_____ Attempts the skill, but makes mistakes

_____ Performs the skill correctly sometimes

_____ Performs the skill correctly half of the time

_____ Performs the skill correctly most of the time

APPENDIX C

GENERAL CASE EXAMPLES FOR SOCIAL SKILLS INSTRUCTION

Class: Initiation

I-1: Initiates When Peers are on Break and not at Work

Baseline Examples

Definition. If picture shows peer not working, student makes an appropriate greeting within 3 seconds. If picture show peer working, student states rule that "I cannot talk to _______(peer name), they are working."

Situations. For all pictures: Hold up picture and say: "What would you do if you saw this?"

1. Picture of supervisor at work
2. Picture of co-worker at break
3. Picture of teacher at break
4. Picture of classmate at work
5. Picture of classmate at break
6. Picture of teacher at work
7. Picture of co-worker at work
8. Picture of supervisor at break

Instructional Examples, Phase A: Others are Working

Instructions. Present picture and say, "What would you do if you saw this?"

Correct response. States rule, "Nothing he or she is working." Approximations are acceptable as long as the underlined words are included.

Error correction. "No, that's wrong. You would say nothing because he or she is working." Or correct whatever the error was.

Cases.

1. Co-worker working

   Prompt: "Nothing, he or she is working."

2. Student working

   Prompt: "Nothing, he or she is working."

3. Teacher working

   Prompt: "Nothing, he or she is working."

4. Supervisor working

   Prompt: "Nothing, he or she is working."

5. Co-worker working

   Prompt: "Nothing, he or she is working."

Phase B: Greeting Others not Working

Instructions. Present picture and say, "What would you do if you saw this?"

Correct response. Any greeting.

Error correction. Say, "No, that's wrong. You say (paired response) because he or she is not working." Or explain whatever the error was.

Cases.

1. Co-worker on break

   Prompt: "How are you today?"

   "Hello, how's your day going?

2. Cue: Supervisor on break

   Prompt: "Hi there. What's going on?"

3. Cue: Co-worker on break

Prompt: "What are you up to?"

4. Wendy on break

Prompt: "Good afternoon."

5. Trudy on break

Prompt: "How are you doing?" and handshake

6. Teacher on break

Prompt: "It's nice to see you."

7. Assistant teacher on break

Prompt: handshake and "Hey, what's up?"

8. Doris on break

Prompt: "Hello, how's your day going?"

Phase C: Combination of others working and not working

Instruction. Present picture and say, "What would you do if you saw this?"

Correct responses. Same as for Phases A and B

Error correction. Same as for Phases A and B

Cases. Five from Phase A and five from Phase B presented in random order.

I-2: Initiates with known individuals and not strangers

Baseline Examples

Definition. If picture shows an individual know to the student, they respond with a greeting statement. If picture shows a stranger to the student, they respond with the rule: "I do not know them, I would not do anything."

Situation. For all pictures, hold up the picture and say: "What would you do if you saw this?"

1. A picture of someone known shopping
2. A picture of a stranger shopping
3. A picture of someone known eating
4. A picture of someone known eating
5. A picture of a stranger eating
6. A picture of a stranger shopping
7. A picture of a stranger eating
8. A picture of someone known shopping

Instructional Examples, Phase A: Greeting Known Persons

Instructions. Present picture and say, "What would you do if you saw this?"

Correct response. Any greeting.

Error correction. Say, "No, that's wrong. Say, '(paired response).' You may talk to him or her because you know him or her.'" Or explain what the error was.

Cases.

1. Two project staff eating
   Prompt: "How are you today?"
2. One project staff shopping
   Prompt: "Hello, it's nice to see you."
   and handshake.
   "Hello, its nice to see you."
   "Hi there. How's it going?"
3. Assistant teacher on break
   Prompt: handshake and "Hey, what's up?"

4. Doris on break

   Prompt: "Hello, how are you doing today?"

5. Wendy on break

   Prompt: "Good afternoon"

6. Teacher on break

   Prompt: "It's nice to see you."

7. Cue: Assistant teachers on break

   Prompt: "Hi, how's it going?"

Phase B: Others are Strangers

Instructions. Present picture and say, "What would you do if you saw this?".

Correct response. "I would say nothing. I shouldn't talk to strangers." Or approximation including underlined words.

Error correction. Say, "No, that's wrong. You shouldn't talk to strangers." Or explain what the error was.

Cases.

1. Stranger eating

   Prompt: "Nothing, she is a stranger"

2. Stranger shopping

   Prompt: "Nothing, he is a stranger"

3. Stranger shopping

   Prompt: "Nothing, she is a stranger."

4. Two strangers outside

   Prompt: "Nothing, they are strangers"

5. Two strangers at a party

   Prompt: "Nothing, they are strangers"

6. Two strangers eating

   Prompt: "Nothing, they are strangers"

7. A family of strangers at a party

   Prompt: "Nothing, they are strangers"

8. Three people at a party

   Prompt: "Nothing, they are strangers"

Phase C: Combination of others known and strangers

Instructions. Present picture and say, " What would you if you saw this?".

Correct response. Same as for Phases A and B.

Error correction. Same as for Phases A and B

Cases. Five from Phase A and five from Phase B presented in random order.

I-3: Initiates when others are not speaking

Baseline Examples

Definition. If picture shows a group looking toward the camera, student responds with a greeting statement. If picture shows a group engaged in conversation, student states rule: "They are talking, I won't interrupt."

Situations. For all pictures, hold up picture and say: "What would you do if you saw this?"

1. Work peers talking
2. School peers not talking

3. Work peers not talking
4. School peers talking

Phase A: Not interrupting

Instructions. Present picture and say, "What would you do if you saw this?".

Correct response. "I would say nothing because they are talking." Or approximation which includes underlined words.

Error correction. Say, "No, that's wrong. Say, 'I would say nothing because they are talking.'".

Cases.

1. Project staff talking to student
   Prompt: "I would say nothing because they are talking."
2. Project staff talking to student
   Prompt: "I would say nothing because they are talking."
3. Two project staff and student, talking
   Prompt: "I would say nothing because they are talking."
4. Two students talking
   Prompt: "I would say nothing because they are talking."
5. Student and Assistant teacher at the computer
   Prompt: "I would say nothing because they are talking."

6. Student and two teachers talking.

Prompt: "I would say nothing because they are talking."

7. Student talking to teacher

Prompt: "I would say nothing because they are talking."

8. Three teachers and student talking

Prompt: "I would say nothing because they are talking."

Phase B: Initiating when Others are not Interacting

Instructions. Present picture and say, "What would you say if you saw this?".

Correct response. Any appropriate greeting.

Error correction. Say, "No, that's wrong. You say, '(paired response)' because they are able to talk with you now." Or explain whatever the error was.

Cases.

1. Project staff, teacher, and student, not talking

Prompt: "What are you up to?

2. Project staff and student

Prompt: "How are you today?" and handshake.

Prompt: "It's good to see you today."

3. Two assistant teachers

Prompt: "Good afternoon"

Prompt: "Hi, how's it going?"

Prompt: "Hello, how are you?"

4. Two teachers and a student

Prompt: "How are you doing?" and a handshake.

5. Supervisor, co-worker, and a teacher

Prompt: "Hey, what's up?"

Prompt: "How's everybody doing?"

Phase C: Combination of others interacting and not interacting

Instructions. Present picture and say, "What would you do if you saw this?".

Correct response. Same as for Phases A and B.

Error correction. Same as for Phases A and B.

Cases. Five from Phase A and five from Phase B presented in random order.

Class: Extensions

E-1: Expressing Opinions

Baseline Examples

Definition 1. Student states opinion in a sentence.

Situation. Sit facing the student within conversational range. The teacher will present the student with a stimulus: Tell me what you think about ______(items should include food, clothing, work, some event that occurred today, an upcoming event, pets, co-workers, peers, weather, etc.). These will vary across trials and should be recorded on the raw data sheet.

Cases.

1. your friends
2. work
3. pictures
4. work supervisor
5. this song
6. music
7. my sweater
8. my watch
9. hot weather
10. weather
11. your sweat suit
12. ice cream
13. the Christmas party on Tuesday
14. student having a wheelchair
15. your new backpack
16. your lunch money
17. student's new shoes
18. student being absent
19. assistant teacher, etc.

Definition 2. Student responds by stating own opinion. Situation. Conduct four trials in the same manner as Definition 1, except the cue should be an opinion instead of a question. (e.g. I really like to have chocolate for desert.) Record the stimulus statement by the trial number.

Cases.

1. Madonna
2. birthdays
3. the pictures on the wall
4. crackers
5. horses
6. teacher's outfit
7. paying attention
8. music
9. Fridays
10. dancing
11. chocolate
12. to be outside in the sunshine
13. surprises
14. School is important.
15. Healthy lunch is important.
16. I think it may snow tonight.
17. I think I am gaining weight.
18. Sure is a lot of cars outside.
19. I'm going to have a nice Christmas vacation
20. There wasn't a lot of work today, etc.

Cases.

1. Work is fun when you like who you work with.
2. Tell ____(Partner) what you think about school.
3. Tell ____(Partner) what you think about this picture.

4. Tell _____(Partner) what you think about work.

5. I like to relax after work and before dinner.

6. [Partner expresses opinion about picture in a magazine.]

7. I like this dress, it's pretty.

Training Situations, Phase A: Expresses Opinion in Response to Questions

Instructions. Peer sits facing student, teacher is to the side of the student. The peer states the stimulus question. The teacher gives the "Tell _____ what you think about ..." cues. Teacher prompts if needed and provides feedback.

Special Instructions for Doris. Practice talking before instructional session. Try to get Doris to say as many words as possible. Praise successive approximations. Praise any sentence, even if she doesn't agree with the prompt. During instruction, record as usual, but praise after error correction. Praise any attempt at whole sentences and move the soda marker up.

Correct response. States opinion about stimulus topic in a sentence.

Error correction. "No, that's wrong. Tell peer what you think about (subject). Say, '(paired response)'". Or explains what error was.

1. "What do you think about going for walks."

 Prompt: "I don't like to walk."

 Prompt: "I like to walk."

2. "What do you like to watch on tv?"

 Prompt: "I like Wheel of Fortune."

3. "What do you like to eat?"

 Prompt: "I like to eat cookies."

 Prompt: "I like hamburgers at MacDonald's."

4. What kind of movies do you like?

 Prompt: "I like scary movies."

5. "What do you think about ball games?"

 Prompt: "I like to watch them."

 Prompt: "Football is a good game."

6. "What kind of music do you like?"

 Prompt: "I like Madonna."

7. "What is the worst thing about work?"

 Prompt: "I get tired sometimes."

 Prompt: "I don't like to get up early."

8. "What's your favorite tv show?"

 Prompt: "I like General Hospital."

9. "What's your favorite thing to wear?"

 Prompt: "I like to wear blue jeans."

10. "What do you think about graduating?"

 Prompt: "I can't wait."

11. "Tell _____(Partner) what you think about work."

Prompt: "I like to work in the laundry."

12. "Tell _____(Partner) what you think about graduating."

Prompt: "I can't wait."

13. "Tell ____(Partner) what you think about soap operas."

Prompt: "I like to watch the stories."

14. "What do you think about mini-skirts?"

Prompt: "I'd rather wear pants."

15. Tell ____(Partner) what you think about living in the country.

Prompt: "The country is nice."

16. Tell ____(Partner) what you think about school.

Prompt: "I miss seeing my friends."

17. What do you think about exercising?

Prompt: "I like to go for walks."

Phase B: Agrees with another's opinion

Instructions. Have peer state the opinion in the cue. Teacher waits the delay and then prompts a correct response. Correct response. Express opinion on topic in a sentence.

Error correction. "No, that doesn't make sense. Say '(paired response)'". Or explain whatever the error was.

Cases.

1. "I really like animals."

   Prompt: "Yes, I like dogs."

2. "My favorite food is french fries."

   Prompt: "Yes, I like french fries, too."

3. "I like Madonna."

   Prompt: "Me, too. I like Madonna."

4. "Basketball is my favorite game."

   Prompt: "I like football better."

5. "I like going to parties and dancing."

   Prompt: "Yes, I like parties, too."

6. "I think work is fun."

   Prompt: "Me too. I like to work."

7. "I like rock and roll music."

   Prompt: "I like rock and roll too."

8. "Work is fun when you like who you work with."

   Prompt: "Yes it is, I like to work with _____(Supervisor.)"

Phase C: Disagree with another's opinion

Instructions. Peer states opinion. Teacher waits delay and provides a model prompt.

Correct response. Expresses own opinion in a sentence related to the topic.

Error correction. Explain error and model correct response.

Cases.

1. "My favorite vegetable is broccoli."

   Prompt: "I don't like broccoli."

2. "I hate to wear pants."

   Prompt: "I like pants."

3. "Basketball is my favorite sport."

   Prompt: "I like football better."

4. "I do not like to watch television."

   Prompt: "I do, I watch the cartoons."

5. "I like the hot weather."

   Prompt: "Not me, I like cold."

6. "I like to get up early on Saturdays and do housework."

   Prompt: "Not me, I sleep late."

7. "I don't like the radio."

   Prompt: "I like to listen."

8. "I like sad movies."

   Prompt: "No, I like funny ones."

E-2: Asking questions

Baseline Examples

Definition. When given a cue to find out some information about a peer, the student asks peer an appropriate question, (For Doris could be at least three words and with a question inflection).

Situation. Sit slightly to side and behind target student and say:

1. "Find out what _______(peer's) job is."
2. "Find out who _____(peer) lives with."
3. "Find out what _____(peer) did today."
4. "Find out what ______(peer) will do when they go home."
5. "Find out what _____(peer) likes to watch on tv."
6. "Find out what _____(peer) likes to eat."
7. "Find out if _____(peer) has any pets."
8. "Find out what _____(peers) hobbies are."

Probe Examples

1. Find out what peer did today.
2. Find out what peer's work is.
3. Find out what peer likes to watch on television.

Instructional Examples

Instructions. Cue the student to ask an appropriate question. Wait the appropriate latency, then model the prompt. Peer should answer the question and extend the interaction. Following peer response, the teacher provides feedback or praise.

Correct response. Student asks an appropriate question. For Doris only, correct is defined as at least three words with a question inflection.

Error correction. No, say "(paired response)". If student cannot say the entire question, provide two prompts, the first half of the question and the second half of the question. Then provide a third prompt for the entire question.

Cases.

1. "Find out where peer lives."
   Prompt: "Where do you live?"
2. "Find out if peer has any pets."
   Prompt: "Do you have any pets?"
3. "Find out what peer likes to eat."
   Prompt: "What do you like to eat?"
4. "Find out what peer's hobbies are."
   Prompt: "What are your hobbies?"
5. "Find out if peer likes to swim."
   Prompt: "Do you like to swim?"
6. "Find out what kind of music peer likes."
   Prompt: "What kind of music do you like?"
7. "Find out what peer will do this weekend."
   Prompt: "What will you do this weekend?"
8. "Find out if peer likes his/her job."
   Prompt: "Do you like your job?"
9. "Find out what peer will do when s/he goes home."
   Prompt: "What will you do when you go home?"
10. "Find out what peer will do this summer."
    Prompt: "What will you do this summer?"

E-3: Repeating and adding information

Definition. Student repeats a word or phrase of conversation partner's last remark and adds new information. Baseline Examples

Situations. Have student sit facing you. Make statement to student (teacher or peer can do this.)

1. "It was a hard (slow) day at work."
2. "I saw a good movie (tv show) this weekend."
3. (Use picture in magazine) "I like these pants."
4. "I think I will go out to eat tonight."
5. "I live in a house (apt.) with my family (alone)." 6. "I think its fun to do things with _______(peer)." 7. "I've been feeling tired (any health information) lately."
8. (turn radio to station you like) "I really like this song."

Probe Examples

1. Conversation partner says: "It was a hard day at work today."
2. Peer turns pages in magazine and says: "This magazine sure has a lot of pictures."
3. Conversation partner says: "I like to relax after school and before dinner."
4. Peer says: "I've been feeling tired lately."

5. Peer turns to page in magazine and says: "I like these pants."

6. Peer turns to page in magazine and says: "I like these pants, they're nice."

Instructional Examples

Instructions. Conversation partner presents the cue and responds to the student after a correct response. Teacher gives prompt after appropriate latency and provides feedback and/or error correction.

Correct response. Student repeats main clause and adds new information.

1. "I saw a good tv show last night."
   Prompt: "Saw a good show? I saw one too."
2. "I think I may go out to eat tonight."
   Prompt: "Out to eat? I'm eating at home."

3. "I think it's fun to do things with friend's name."
   Prompt: "Fun with friend's name? I like friend's name, too."
4. "I don't like to watch cartoons."
   Prompt: "Don't watch cartoons? They are my favorite."
5. "Swimming is good exercise."
   Prompt: "Swimming, I used to swim at Crow Pool."

6. "I may go shopping this weekend."

   Prompt: "Shopping, what will you buy?"

7. "I like these pants." (points to picture in magazine.)

   Prompt: "Like those. What else do you like?"

8. Turn on the tape player. "I like this song."

   Prompt: "That song? Yeah, I like it, too."

9. "I like sad songs."

   Prompt: "Sad songs, I like happy ones."

10. "I get up early on Saturdays and do work."

    Prompt: "Get up and work, what do you do?"

Class: Terminations

T-1: Initiating Terminations

Probe and Baseline Examples

Definition. Initiates termination when conversation partner has halted interaction, student should initiate termination within 20 seconds.

Instructions. Conduct at end of probe trial.

1. Continue to look at student, but remain silent, do not respond.
2. Look away from student distracted.
3. Get up and leave student.

Instructional Examples

Instructions. Have magazine, pencil and paper, data sheet on hand. Tell the student you are going to practice ending conversations. The peer gives the cues, the teacher gives the prompts.

Correct response. Student makes any termination response (e.g. "bye" or "see you later").

Error correction. Say, "No, that's wrong.", explain the mistake, and provide a correct model (paired response).

1. Cue: Look at student silently.
   Prompt: "See you later."
2. Cue: Look around the room, distracted.
   Prompt: "Bye".
3. Cue: Get up from table and move away from student
   Prompt: Wave.
4. Cue: Gather up materials on the table.
   Prompt: "Have a good day".
5. Cue: Look at watch and then move away from student.
   Prompt: "It was nice to see you."
6. Cue: Open a magazine and look at it.
   Prompt: "See you later."
7. Cue: Drum fingers on the table and look around the room.
   Prompt: "It was nice to see you".
8. Cue: Start writing on the paper.
   Prompt: "Bye".

APPENDIX D

INTERACTION GENERALIZATION OBSERVATION (IGO)

DIRECTIONS AND SUMMARY FORMS

Definitions

Social Bid

Movement or speech directed toward another person. Physical orientation of the face, hands, and body toward another individual within four feet would be evidence for inferring that a behavior was directed to another. Vocalization combined with physical gestures such as reaching or with visual fixation on another person would also be a clue to inferring that a behavior was directed to another.

End of Interaction Cycle

An end of cycle is signaled by a termination response or 20 seconds of no interaction. If a response is followed within 20 seconds, it is coded as part of the same interaction even when response seems unrelated to previous response.

Appropriate Response

Appropriate is appropriate for the setting and for the student. Consider student's orientation to others in the interaction, volume of vocalizations, absence of stereotypic behaviors, and sensibility of content when coding appropriateness. If the behavior of the student falls in the range of others in the setting and is not reacted to negatively, record it as appropriate.

Inappropriate Response

Behaviors that stand out in the setting, stereotypic behaviors, and behaviors that attract negative attention should be recorded as inappropriate.

Initiation

An initiation is a behavior which served to begin interaction with another. Examples include greetings or signals to attract attention. Inappropriate behaviors that elicit responses will also be coded as initiations. An initiation-like response that follows another person's initiation (e.g. saying "hello" to someone who has said "hello") should not be coded as initiation.

Extension

Behaviors that follow another response and could serve to extend interaction. Examples include questions, comments about ongoing activities, and opinion statements.

Termination

Behaviors which typically serve to end interaction. These include typical markers to end conversations (e.g. "Bye" or turning and leaving the person(s) with whom the student is interacting). Inappropriate behaviors that end interactions were coded as terminations.

Positive Affect

Exhibiting obviously positive behavior such as smiling or laughing.

Negative Affect

Exhibiting obviously negative behavior such as screaming, crying, criticizing or aggression.

Neutral Affect

All responses which are neither positive or negative.

No Response

Recorded when an agent does not respond to an appropriate social bid that was formulated to elicit a response.

Interaction Generalization Observation

Directions

1. Write the name of the person being observed in the student space.
2. Write your name as observer.
3. Write the name of the place where you are observing in the Location line. Be specific. For example, use "employee cafeteria, Franchise Motel" instead of "Franchise Motel" or "seating area in the bowling lanes, Pens Bowling Alley" instead of "bowling alley."
4. Write the date in the date space.
5. Time start and end should be the times you begin and end the 10 minute interval of recording.

Setting Variables

6. Describe the ongoing activity in the activity space (e.g. "waiting in line to buy refreshments" or "sitting at table conversing").

7. Write the name or identifying description of persons who are attending the activity with the student. This does not include friends or peers the student meets at the activity, but those who brought or came with the student.

8. Write some identifying characteristic of persons within four feet of the student at the beginning of the observation. These are the individuals who have the greatest possibility of interacting with the student. This information could be names (if known), position of employment, relationship to student, or description. If using description, include information about whether or not they are peers (other participants in the activity) or involved in a professional capacity. (e.g. "Barbara Jones" or "counter person" or "student's friend from church" or "woman in line to buy ticket" or "lifeguard")

9. Describe the position of the student in relationship to the others with whom the student could be interacting and or the activity if appropriate. (e.g. "standing in group of four, facing other participants" or "sitting at table next to peer,

facing across table" or "seated in wheelchair in line, facing forward away from companion")

Record of observation

10. Set the timer for 10 minutes when beginning the observation.
11. Use stop watch to record the amount of time the student participates in appropriate interaction. Record time with the lap function so that cumulative time in interaction is recorded. Begin timing each interaction at the beginning of each interaction (i.e., student bid or bid to student). Stop timing following a clear termination (e.g. "Bye, see you later"), at the end of 20 seconds of no interaction, or when inappropriate behaviors occur.
12. Record all target student social responses in the center space in each observation block.
    Each new bid should be recorded in a new block.
    New bids are defined when bid follows a conversation partner's response or when student has paused for a response and no response was made.
    Social bids are "movements toward another person. Physical orientation of the face, hands, and body toward another individual within four feet would be evidence for inferring that a behavior was directed to another. Vocalization combined with physical gestures such as reaching or with visual

fixation on another person would be clues to inferring that a behavior was directed to another." (Brinker & Thorpe, 1981). According to this definition, any communicative behaviors will be recorded. Also, describe motor behaviors or position of the reactor during intervals of 15 seconds of silence or no exchange when there has been no clear termination. (e.g. An observer records "gaze fixed on students face" when no interaction was occurring for 15 seconds, but the interaction was not clearly over.) These behaviors may or may not appear to be communicative to the observer. When the response is verbal, transcribe the comment.

13. Record the stimulus for the response in the space above the target response block. If another person's behavior was the stimulus, indicate who the agent was in the agent space. In a series of interactions, when the consequence to one student response is also the stimulus for the next student response, draw a line through the stimulus space.

14. Record the consequence to the student response in the space below the target response. If the response was another person's behavior, indicate the identification of the person in the agent space. If there is no response to the student, indicate with

whom the student was attempting to interact, in the agent space.

15. In the affect column, circle (+) if the agent is exhibiting obviously positive behavior such as smiling or laughing. Circle (-) if the agent is exhibiting obviously negative behavior such as screaming or criticizing. Circle a check ( ) for responses which are neither positive or negative, but neutral. Circle (0) in the student Affect space when an agent makes a social bid to the student that is formulated to elicit a response and the student does not respond within 20 seconds. Circle (0) in Agent consequence space if no one responds to the student, or if the student is ignored.
16. In the space above the interaction block (Coded Persons, Location/Position, Activity), record any changes that occur in the setting variables. For example, changes in activity, new persons entering or leaving the four foot space around the student, student moving to within four feet of others, and/or changes in student position when the student moves or others change their position in relation to the student in the position space. Record changes above the student response they precede.
17. Mark the character of the student's response in the column to the left of the response box marked STU.

Circle "App" if the student's behavior fits the definition of appropriate. Circle "I" if the student's behavior was inappropriate. Also, circle the characteristics which made it inappropriate: "ORI" for inappropriate orientation, "VOL" for inappropriate volume (too loud for the setting or too soft to be understood), "SENSE" for lack of sensibility (the utterance did not make sense or did not fit the context), "DIS" for inappropriate distance to the agent the student is engaged in interaction with, "STER" if the student exhibits stereotypic behaviors during the interaction.

18. Draw a wavy line across the page under the interaction box at the close of each interaction cycle. The end of the interaction cycle is indicated by a clear termination response or 20 seconds of no interaction.

After the Observation

19. Fill in Time Start and End.
20. Go over your notes of the social interaction, make sure items are complete, legible, and understandable to others.
21. Categorize responses. In the Category column, circle "I" for initiation responses. Initiations are defined as an attempt by the student to engage others in an interaction. (e.g. attempts to get the

attention of others not attending to the student or typical greetings). Do not include responses to another individual's initiation in this category. Initiations may include inappropriate behaviors if the behavior is responded to by another person. Circle "E" for expansion statements. Expansion statements occur in response to initiations or other expansions and typically will serve to elicit a response from other's involved in the interaction. Expansions include questions, comments about ongoing activities, and opinion statements. Circle "T" for terminations. A termination is defined as a marker which serves to end interactions, such as "bye" or "see you later." Code inappropriate responses as terminations if they serve to end an interaction.

22. In the observer reaction space (on the back of the summary page), describe your feelings about the observation. Include your feelings about the interaction, your role as observer in the particular situation, and any salient aspects of the interaction that stood out to you as important and may or may not be reflected in the record of observation.

Weekly Instructional Log Summaries

Log of: ______________________ Summary by: ______________

Notes on Student Progress

Doris:

Trudy:

Wendy:

Generalization/Maintenance Observed:

Problems in Implementation:

Questions/Hypothesis:

Other:

Target Skill Observation Summaries

Date: ___________ Time: __________ Observer: ___________

Description of Context:

Skills observed in social interactions:

Description of typical interactions:

Fieldnote Summary

Date:__________ Time: __________ Observer:

____

Purpose of the Observation:

Description of the Context:

Student Social Skills Strengths:

Student Social Skills Weaknesses:

Description of Interactions with Students:

Description of Interactions among Others:

Other Salient Features:

Further Questions/Hypothesis to Explore:

INTERACTION GENERALIZATION OBSERVATION

Narrative Summary

Student: ______________________ Observer: ____________________

Setting: ___________________ Date: ___________ Time: _______

Proceeding Events:

Summary:

Following Events:

Reactions:

Other:

APPENDIX E

DEFINITIONS FOR CODING OBSERVATION DATA

Categories Coded During Observation

Social Bid

Movement or speech directed toward another person. Physical orientation of the face, hands, and body toward another individual within four feet would be evidence for inferring that a behavior was directed to another. Vocalization combined with physical gestures such as reaching or with visual fixation on another person would also be a clue to inferring that a behavior was directed to another.

First Assistant	Second Assistant
r = .96	*r* = 1.00

End of Cycle

An end of cycle was signaled by a termination response or 20 seconds of no interaction. If a response is followed within 20 seconds, it is coded as part of the same interaction even when response seems unrelated to previous response.

Interobserver reliability:

First Assistant

41	16
13	378

K = .70 *r* = .61

Second Assistant

26	14
3	267

K = .72 *r* = .96

Categories Coded Following Observation

Location

The location indicated the setting in which the observation took place.

Interobserver reliability:

First Assistant

8	0
0	56

K = 1.00 *r* = --

Second Assistant

7	0
0	42

K = 1.00 *r* = --

Franchise motel. This was the work setting for Trudy and for Wendy. Observations occurred there in the laundry room, in the hallways, in the employee lunchroom, and in the lobby.

Sheltered workshop. This was the work site for Doris. Observations were conducted in a lunchroom area and in an adjacent vending area.

High school. This indicated the high school all three participants attended. Observations were conducted in the cafeteria, in the classroom during leisure time, and in the vocational education office.

Full-service restaurants. Students were observed in two full-service restaurants. One was a delicatessen next door to the franchise motel and the other was a coffee, pastry, and sandwich shop in a medium-sized town.

Outdoors. There were three parks included in the observations. Areas included in park observations were: picnic tables, a basketball court, a fitness trail, and a grassy area.

Shopping. Students participated in observations in an enclosed shopping mall, a bookstore, a pharmacy, and a grocery store.

Fast food restaurants. A variety of self-service hamburger and Mexican restaurants were used for observations.

Potential Conversation Partners

Classmates and others with disabilities. This category included others with disabilities, such as high school classmates and co-workers in the sheltered workshop.

First Assistant	Second Assistant
$r = .76$	$r = .97$

Teachers and staff. This category included all teachers, administrators, and staff employed by the school district to provide educational services and who came in contact with the study participants in some aspect of a teaching role. Workshop staff were also included in this category.

First Assistant	Second Assistant
$r = .97$	$r = 1.00$

Social skills project staff. These included the primary investigator, two research assistants, and one college student introduced to the participants to increase the opportunities for interactions.

First Assistant	Second Assistant
r = 1.00	r = 1.00

Non-disabled coworkers and peers. This included coworkers at the Franchise Motel in housekeeping, in maintenance, and in management. Non-disabled students at the high school were also included in this category.

First Assistant	Second Assistant
r = .94	r = .98

Site employees. This category included employees of businesses study participants were using (e.g., waitresses or counter persons in restaurants).

First Assistant	Second Assistant
r = 1.00	r = 1.00

Other known. Included other individuals who are not covered by above categories, but were known to the study participant.

First Assistant	Second Assistant
r = --	r = 1.00

Other strangers. Included individuals who were not known to the student, and were not covered by the above categories.

Interobserver reliability:

First Assistant

r = --

Second Assistant

r = 1.00

Activity

Interobserver reliability:

First Assistant

292	3
5	3300

K = .98 r = .99

Second Assistant

194	0
0	2366

K = 1.00 r = .98

Intercoder reliability: K = .90

Break time. Seated in "take a break activity" during a scheduled break time.

Interobserver reliability:

First Assistant

116	0
0	184

K = 1.00 r = .99

Second Assistant

1	0
0	214

K = 1.00 r = .98

Getting food. Getting, purchasing, or ordering coffee, soda, or food.

Interobserver reliability:

First Assistant

2	0
0	298

K = 1.00 r = 1.00

Second Assistant

0	0
0	215

K = -- r = --

Eating/drinking. Eating/drinking other than breaktime. Interobserver reliability:

First Assistant

154	5
3	138

K = .96 r = .99

Second Assistant

174	0
0	41

K = 1.00 r = 1.00

Hanging out. The time before and after meals other than at break time when no other activities were occurring.

Interobserver reliability:

First Assistant

0	0
0	300

K = 1.00 r = --

Second Assistant

33	0
0	182

K = 1.00 r = 1.00

Games. Playing a game, such as a card game.

Interobserver reliability:

First Assistant

0	0
0	300

K = -- *r* = --

Second Assistant

0	0
0	215

K = -- *r* = --

Shopping. In a shopping location with a specific task or just looking.

Interobserver reliability:

First Assistant

0	0
0	300

K = -- *r* = --

Second Assistant

0	0
0	215

K = -- *r* = --

Fitness trail. Participating in a physical fitness workout in a public park course designed for that purpose.

Interobserver reliability:

First Assistant

0	0
0	300

K = -- *r* = --

Second Assistant

0	0
0	215

K = -- *r* = --

In motion. Walking from one place to another in some context (e.g., getting up to throw something away, walking to the bathroom).

Interobserver reliability:

First Assistant

0	0
0	300

K = --   *r* = --

Second Assistant

0	0
0	215

K = --   *r* = --

Magazine. Looking at a magazine.

Interobserver reliability:

First Assistant

0	0
0	300

K = --   *r* = --

Second Assistant

0	0
0	215

K = --   *r* = --

Television.

Watching a television show or movie on television.

Interobserver reliability:

First Assistant

0	0
0	300

K = -- *r* = --

Second Assistant

0	0
0	209

K = -- *r* = --

Party. Interaction occurring at a party.

Interobserver reliability:

First Assistant

20	0
0	280

K = 1.00 *r* = --

Second Assistant

0	0
0	215

K = -- *r* = --

Dancing. Dancing to music.

Interobserver reliability:

First Assistant

0	0
0	300

K = *r* =

Second Assistant

0	0
0	215

K = *r* =

Type of Remark

Directions for coding multiple remarks within a bid. When more than one remark (does not have to be sentence) occurred in a bid, only two remarks were coded. If only two types of remarks occurred, they were coded order of occurrence. If three or more types of remarks occurred in one bid, the type of remark representing the major intent of the bid was coded first and the last type of remark or the one to which the partner would respond was coded as the second bid.

Interobserver reliability:

First Assistant

787	457
509	8975

K = .57 r = .90

Second Assistant

420	236
163	7959

K = .61 r = .96

Intercoder reliability: K = .91

Yes or no questions of opinion. Question requesting an opinion in a yes/no format. May include words like "think about," "feel about," "want," "wish," or attempts to predict the future. Also, may include request for confirmation of an opinion.

Examples:

1. Do you like the new socks?
2. You sure do like coffee, don't you?
3. Do you like scary movies?

Interobserver reliability:

First Assistant

14	7
1	426

K = .76   *r* = .92

Second Assistant

3	2
2	304

K = .58   *r* = .79

Intercoder reliability: *K* = .78

Yes or no questions for facts or descriptions. Questions requesting information about facts or descriptions in a yes/no format. This includes questions about what kind of work one does, which item is theirs, or where something is. Requests for permission are also included in this category.

Examples:

1. You have any dreams?
2. Can you listen to it with batteries?
3. Did you brush your teeth this morning?

Interobserver reliability:

First Assistant

26	11
13	398

K = .66   *r* = .94

Second Assistant

6	5
5	295

K = .53   *r* = .69

Intercoder reliability: *K* = .80

Extending questions of opinion. Questions, not in a yes or no format that request an opinion. Will include words like "think about" or "feel about"or wants, wishes, or predictions. Also may include request for confirmation of an opinion.

Example:

1. "What do you think about that plant?"
2. "What kinds of food do you like?"
3. "What do you like to watch on tv?"

Interobserver reliability:

First Assistant

1	4
0	443

K = .30 *r* = 1.00

Second Assistant

0	0
0	311

K = -- *r* = --

Intercoder reliability: *K* = .82

Extending questions for facts or descriptions. Questions requesting information about facts or descriptions. This includes questions about what kind of work one does, which item is theirs, where something is, or for permission.

Examples:

1. "Now, what are you doing?"
2. "What did you have for supper last night?"
3. "What are you doing later?"

Interobserver reliability:

First Assistant

18	7
15	408

K = .59 *r* = .89

Second Assistant

16	7
1	287

K = .78 *r* = .88

Intercoder reliability: *K* = .90

Follow-up questions for clarification, confirmation, or continuation. This category included both extending questions and yes or no questions. It included questions for confirmation of what was said, including "what", requests for repetitions, or restatements or explanations followed by a question for confirmation or question inflection. This category also included questions that appeared to be used to encourage the speaker to continue. The category included some questions of one or two words that could have implied the partner did not understand and was asking for clarification or an acknowledgement of following the topic.

Example:

1. Student: "That's neat."
   >Peer: "That's neat? So you're pretty excited about it?"

2. Student: "Help Brandon do laundry."
   >Peer: "Where's Brandon? Isn't he at the hotel?"
3. Student: "All My Children."
   >Peer: "That's a soap, right?"
4. Student: "I want a watch."
   >Peer: "A watch? For Christmas?"
5. "What?" [As in What did you say?]
6. "You look mad. Why are you mad?"
7. "What did you say?"

Interobserver reliability:

First Assistant

24	20
27	377

_K_ = .45   _r_ = .97

Second Assistant

7	15
5	284

_K_ = .38   _r_ = .91

Intercoder reliability: _K_ = .83

Statements of fact and description. Statements of three or more words providing basic information, such as what one is doing, may be planning to do, or description of current feelings and/or emotions. Did not include opinions about the information. Did include stories, when a person makes several remarks in telling a story.

Example:

1. "I have a headache."

2. "I'll feed myself."
3. "I have salami."

Interobserver reliability:

First Assistant

37	16
34	361

K = .53 r = .75

Second Assistant

37	25
22	227

K = .52 r = .97

Intercoder reliability: K = .94

Statements of opinion. Statements of three or more words that described how the speaker felt or thought about or wanted regarding the topic of discussion. Descriptions of feelings/emotions were included in statements of fact or description and not opinion. Statements including "like", "want", "wish", and "think" are opinions. Statements expressing agreement or disagreement with another's opinion are opinion. Statements of physical need are not opinions. Statements of conditions (temperature, weather) and feelings are not opinions.

Example:

1. "I like your shorts.
2. "I work so hard."
3. "I don't think I would do that if I were you."
4. "It is hot outside."

Non-example:

1. "I am hot."

Interobserver reliability:

First Assistant

8	8
15	417

K = .39 r = .84

Second Assistant

12	11
4	284

K = .59 r = .85

Intercoder reliability: K = .81

Statements giving directions. Statements of three or more words that provided information about how to do something, gave instructions about how to do something, or made a request to the listener to complete a task. Included verbal prompts and teaching instructions.

Example:

1. Student: "My birthday is next Monday."
   >Observer: "Remember, I can't talk to you now."
2. "Tell Laura what a good job you did yesterday."
3. "Help me fold sheets."

Interobserver reliability:

First Assistant

11	5
6	426

K = .65 r = .69

Second Assistant

7	4
5	295

K = .61 r = .84

Intercoder reliability: K = .90

Yes or no. Referred to answers to yes/no questions. When bids included a yes or no response and then the speaker added more information, then it was coded as "yes or no" as the first remark and whatever was appropriate as the second remark to describe the further information.

Rule:

1. When yes/no follows anything but a yes/no question, it is coded as an acknowledgement.

Example:

1. Peer: You go by yourself?

> Student: Yep.

Non-Example:

1. N: When you start to say "good-bye" and when people are ready to leave. Things like that.

>W: um-hm. (acknowledgement)

Interobserver reliability:

First Assistant

18	8
31	391

_K_ = .44 _r_ = .95

Second Assistant

6	2
5	298

_K_ = .54 _r_ = 1.00

Intercoder reliability: _K_ = .96

Phrases of fact and description. Phrases of one or two words that provided basic factual and/or descriptive information.

Examples:

1. Peer: "When did you get up?"
   >Student: "Early."
2. Peer: "Does your brother wear earrings?"
   >Student: "My sister."

Interobserver reliability:

First Assistant

8	21
12	407

_K_ = .29 _r_ = .81

Second Assistant

11	10
7	283

_K_ = .53 _r_ = .76

Intercoder reliability: _K_ = .86

Acknowledgements. Phrases that suggested listening or understanding or participating with the conversation partner. Acknowledgements followed only statements, and could not follow questions. Acknowledgements included responses to compliments. Responses to directions that were phrased as questions, were coded as "yes or no" rather than "acknowledgement."

Example:

1. "Um-hm"
2. "I like your hair."

   >"Thank you."

Interobserver reliability:

First Assistant

12	9
9	418

K = .55 *r* = .51

Second Assistant

3	6
5	297

K = .36 *r* = .77

Intercoder reliability: *K* = .90

Phrases giving directions. Phrases of one or two words that provided information how to do something, provided instructions about how to do something, or requested the completion of some task. "Phases giving directions" included verbal prompts and teaching instructions.

Examples:

1. Do this.
2. Take it.

3. Tell Linda.

Interobserver reliability:

First Assistant

2	2
3	441

K = -- *r* = --

Second Assistant

0	1
0	310

K = .72 *r* = --

Intercoder reliability: *K* = .80

Phrases of opinion. Phrases of one or two words that described how the speaker felt or thought about or wanted regarding the topic of discussion. Descriptions of feelings/emotions were included in statements of fact or description and not opinion.

Examples:

1. "Good."
2. "That's right."
3. Peer: "I like the cold weather."
   >Student: "Me, too."

Interobserver reliability:

First Assistant

4	2
1	441

K = .73 *r* = .81

Second Assistant

3	1
2	305

K = .70 *r* = .79

Intercoder reliability: K = .90

Greeting. This included remarks typically used as greetings most often occurring at the beginning of interactions or following other greetings, words or phrases that served to get another's attention or to begin interactions, as well as remarks that served to end events or conversations. Terminations had to be clear markers (e.g., "bye," or "see you later") and could not include remarks that may have ended conversations, but could have also extended the conversation.

Examples:

1. "How are you?"
2. "Pretty day, isn't it?"
3. "Dave." (as hands him change.)
4. "Guess what."
5. "Hey Wendy!"
6. "Good morning."

Interobserver reliability:

First Assistant

7	5
5	431

K = -40 r = .58

Second Assistant

15	4
2	290

K = .82 r = .95

Intercoder reliability: K = .96

Motor responses. This included remarks that did not include a verbal language remark. This included nods, eye contact, eye rolling, smiles, shrugs, etc.

Examples:

1. Trudy: "Excuse me."
   >Laura: [moves to let Trudy pass]
2. Annie: "This is what I did, I pulled my skirt around like this." [gestures pulling skirt] (statement of fact or description and motor responses)
3. [Takes tape off shelf and hands it to Nelda.]

Interobserver reliability:

First Assistant

17	32
14	385

$K = .37$ $r = .68$

Second Assistant

11	12
6	281

$K = .59$ $r = .93$

Intercoder reliability: $K = .92$

Other verbal. This category was created by collapsing several other categories of remarks that occurred infrequently or were not included in the other categories. The categories of remarks that occurred infrequently were:

a) offering help: Statements or questions in which the speaker offers assistance to another person.

Examples:

1. "I can help you with that milk carton."
2. "Would you like some help?"
3. "May I help you with that milk carton?"
4. Peer: "I didn't put sugar in my tea."

>Student: "You want me to get you some?"

b) requesting help/assistance: Questions asking for help or assistance from another person.

Examples:

1. "Could you help me?"
2. "Would you open the door for me?"
3. "Would you hold this?"

c) expletives: Interjections, oaths, exclamations.

Examples:

1. "Oh well!"
2. "You mama!"

d) not completed: Statements that were interrupted or stopped without enough information to determine intent.

Examples:

1. "I wish ... "
2. "What? Who? Is . . .?

Interobserver reliability:

First Assistant

9	18
14	407

K = .31 r = .42

Second Assistant

8	13
9	281

K = .40 r = .67

Intercoder reliability: K = .76

Laughter. Coded when laughter was the only remark recorded.

Interobserver reliability:

First Assistant

0	4
4	440

K = .49 r = .77

Second Assistant

2	1
3	305

K = .49 r = .91

Intercoder reliability: K = .91

No response. When a person engaged in an interaction did not respond to the person who was speaking and it was clear the speaker expects a response (e.g., when someone asks a question).

Interobserver reliability:

First Assistant

10	7
14	417

K = .41 *r* = .98

Second Assistant

25	11
6	267

K = .72 *r* = .97

Intercoder reliability: *K* =

Don't know. Cannot tell from what is written on the observation form what type of remark it was.

Groups of Remarks

The "groups of remarks" differed from "type of remark" because the groups were not mutually exclusive.

Questions. All remarks coded as "yes/no questions of opinion," "yes or no questions for fact or description," "questions of opinion," "questions for factual information and description," and "follow-up questions."

Interobserver reliability:

First Assistant

110	35
46	395

K = .64 *r* = .98

Second Assistant

35	24
6	256

K = .65 *r* = .89

Intercoder reliability: *K* = .97

Questions requiring yes or no response. All questions coded as yes or no questions for opinions or for factual or descriptive information.

Interobserver reliability:

First Assistant

56	16
17	496

$K = .74$ $r = .99$

Second Assistant

9	7
5	300

$K = .52$ $r = .59$

Intercoder reliability: $K = .73$

Questions requiring extended responses. All questions coded as "extending questions."

Interobserver reliability:

First Assistant

52	12
25	497

$K = .70$ $r = .94$

Second Assistant

17	4
2	298

$K = .84$ $r = .95$

Intercoder reliability: $K = .94$

Questions for opinion. Those remarks coded as either: "yes or no questions for opinion" or "extending questions for opinion."

Interobserver reliability:

First Assistant

26	9
5	346

K = .77 *r* = .84

Second Assistant

2	2
3	314

K = .41 *r* = .82

Intercoder reliability: *K* = .81

Questions for more information. Those questions coded as: "yes or no questions for factual and descriptive information," "extending questions for factual and descriptive information," or "follow-up questions."

Interobserver reliability:

First Assistant

82	29
45	430

K = .61 *r* = .98

Second Assistant

26	18
3	274

K = .68 *r* = .96

Intercoder reliability: *K* = .87

Statements of three or more words. All remarks in the "statements" subcategories.

Interobserver reliability:

First Assistant

57	61
26	442

K = .48   r = .85

Second Assistant

57	39
22	203

K = .52   r = .98

Intercoder reliability: K = .93

Phrases. All remarks in the "phrases" subcategories

Interobserver reliability:

First Assistant

61	64
41	420

K = .43   r = .89

Second Assistant

16	13
12	280

K = .52   r = .97

Intercoder reliability: K = .95

Providing information. Phrases and statements coded as "factual and descriptive information" or "opinion."

Interobserver reliability:

First Assistant

70	27
57	432

K = .54   r = .80

Second Assistant

70	9
20	222

K = .70   r = .99

Intercoder reliability: K = .94

Providing directions. Statements of three or more words and phrases of one or two words that provided directions.

Interobserver reliability:

First Assistant

11	4
6	565

K = .69 r = .78

Second Assistant

5	1
3	312

K = .72 r = .84

Intercoder reliability: K = .95

Brief responses. Phrases coded as: "yes or no," acknowledgement," or "expletive."

First Assistant

55	31
56	444

K = .47 r = .94

Second Assistant

11	8
6	296

K = .58 r = .93

Intercoder reliability: K = .95

Generalization

The remarks similar to the responses that had been instructed were assessed for generalization. This included the remarks coded as "questions," "opinion phrases," "opinion statements," and "greetings." Additionally, Wendy's observations were searched for instances where even one word of the preceding speaker's remark had been repeated.

The coder evaluated the training definitions and cases, if the bid was similar to the training cases and met the following criteria, it was coded as an instance of generalization.

Interobserver reliability:

First Assistant

7	5
5	1327

K = .80 *r* = .80

Second Assistant

9	1
1	1

K = .91 *r* = .87

Intercoder reliability: *K* = .86

Greeting. Greeting generalizations were greeting markers (e.g., "hello," "what's up?") and not just any conversation starter. Greeting generalizations were initiated by the student and did not follow a conversation partner's greeting. Greetings did not count as an instance of generalization when they interrupted others in conversation, when the person greeted is working, or when the person being greeted was a stranger to the student.

Interobserver reliability:

First Assistant

1	2
1	444

K = .40 *r* = .80

Second Assistant

3	0
0	153

K = 1.00 *r* = 1.00

Intercoder reliability: *K* = 1.00

Expressing opinion. Statements expressing agreement or disagreement with another's opinion were counted as opinions. For Doris, both opinion phrases and statements were evaluated for possible generalization, but opinion phrases were not evaluated for generalization for Wendy and Trudy. Repetitions of the same opinion in an observation were counted only one time (e.g. Wendy saying "Work is fun.").

Interobserver reliability:

First Assistant

4	3
3	438

K = .60 *r* = .87

Second Assistant

6	1
1	147

K = .85 *r* = .82

Intercoder reliability: *K* = .67

Asking questions. Questions were related to the conversation at hand. Questions did not have to be in sentence structure, verbs may have been implied. The question had to make sense in the context. Generalization was not scored for repeating some else's question. For Doris, only, three words with a question inflection was also scored as a case of generalization.

Interobserver reliability:

First Assistant

2	0
1	444

K = .40 *r* = .93

Second Assistant

0	0
0	155

K = -- *r* = --

Intercoder reliability: *K* = .67

Repeating and adding new information. Repeated main clause of statement and added new information. The new information could be an opinion statement, a question, or other related information.

Interobserver reliability:

First Assistant

0	0
0	448

K = -- *r* = --

Second Assistant

0	0
0	155

K = -- *r* = --

Intercoder reliability: *K* = .72

Repetitions

Fifty percent or more of the words in a remark are the same as the preceding remark by the same speaker or by the conversation partner.

Interobserver reliability:

First Assistant

15	25
20	385

K = .35 *r* = .88

Second Assistant

20	24
8	259

K = .91 *r* = .92

Intercoder reliability: *K* = .80

Topic Initiator

The speaker who initiated the topic in that cycle.

Interobserver reliability:

First Assistant

275	99
83	6076

K = .73 *r* = .97

Second Assistant

184	91
63	4912

K = .69 *r* = .99

Intercoder reliability: *K* = .91

Change in Topic

The topic was changed within a cycle or returned to a topic discussed earlier in the cycle. Asides to someone else were not coded.

Interobserver reliability:

First Assistant

41	12
21	364

K = .68 r = .87

Second Assistant

24	11
10	264

K = .66 r = .78

Intercoder reliability: K = .79

Categories With Low Reliability

Class of Remark

Initiation. Behavior which serves to begin interaction with another. Example include greetings or signals to attract attention. Inappropriate behaviors which solicit responses will also be coded as initiations. An initiation like response that follows another person's initiation (e.g. saying "hello" to someone who has said "hello") should not be coded as initiation.

Extension. Behaviors which follow another response and could serve to extend interaction. Examples include questions, comments about ongoing activities, and opinion statements.

Termination. Behaviors which typically serve to end interaction. These include typical markers to end conversations (e.g. "Bye" or turning and leaving the persons interacting). Inappropriate behaviors which end interactions will be coded as terminations.

Appropriate Bid

Appropriate is appropriate for the setting and for the student. Consider orientation to others in the interaction, volume of vocalizations, absence of stereotypic behaviors, and sensibility of content when coding appropriateness. If the behavior of the student falls in the range of others in the setting and is not reacted to negatively, record it as appropriate.

Interobserver reliability:

First Assistant

83	29
51	50

K = .24 r = .96

Second Assistant

50	28
10	88

K = .38 r = .98

Inappropriate Bid

Behaviors which stand out in the setting, stereotypic behaviors, and behaviors which attract negative attention should be recorded as inappropriate.

Interobserver reliability:

First Assistant

21	37
20	134

K = .37 *r* = .75

Second Assistant

112	102
46	979

K = -.17 *r* = .92

Orientation. Poor eye contact or orientation toward conversation partner.

Interobserver reliability:

First Assistant

5	8
7	192

K = .40 *r* = -.07

Second Assistant

8	17
6	124

K = .33 *r* = .96

Volume or clarity. Volume or enunciation were inappropriate and/or conversation partner could not understand.

Interobserver reliability:

First Assistant

2	11
3	196

K = .20 *r* = .32

Second Assistant

0	2
0	152

K = .00 *r* = -.20

Sense. Those bids that do not seem be appropriate given the context of the interaction due to content. Consider the conversation partner's response when coding "inappropriateness".

First Assistant

10	26
19	157

K = .19 *r* = .87

Second Assistant

19	23
8	105

K = .43 *r* = .86

Stereotypy. Included rocking, ritualist repetitive speech, and waving hands in front of face.

Interobserver reliability:

First Assistant

0	1
1	209

K = .10 *r* = --

Second Assistant

0	0
0	155

K = 1.00 *r* = --

Affect.

Interobserver reliability:

First Assistant

237	125
129	1291

K = .78 *r* = .52

Second Assistant

163	73
33	662

K = .68 *r* = .99

Positive affect. Exhibiting obviously positive behavior such as smiling or laughing.

Interobserver reliability:

First Assistant

6	31
17	390

K = .16 *r* = .85

Second Assistant

3	7
6	295

K = .49 *r* = .87

Negative affect. Exhibiting obviously negative behavior such as screaming, crying, criticizing or aggressive.

Interobserver reliability:

First Assistant	
0	12
2	432

K = .10 r = .85

Second Assistant	
0	0
0	310

K = -- r = --

Neutral affect. All responses which are neither positive or negative.

Interobserver reliability:

First Assistant	
221	76
97	52

K = .11 r = .90

Second Assistant	
160	66
27	57

K = .99 r = .44

APPENDIX F

AUDIT REPORT AND PROCEDURES

Contents:	Halpern (1983) Procedures as cited in Lincoln and Guba (1985). Letter of Attestation (Clark, 1989)

A Procedure for Auditing Naturalistic Inquiries

Events	Auditee Tasks	Auditor Tasks
(1) Contact by auditee	(A) initiate contact (B) determine need for audit (C) prepare audit trail for review	(A) determine need for audit
(2) Orientation to the study	(A) explain record-keeping system	(A) become familiar with audit trail (B) become familiar with content
(3) Discuss audit alternatives	Decision to continue with audit unconditionally, conditionally and with a new auditor, or abandon audit (A) revise audit trail as necessary	
Auditability Phase		
(4) Familiarity with study	(A) arrange logistics for auditor (B) remain available for consultation	(A) identify research questions/problems (B) identify methodological choices: (1) perspective/ paradigm; (2) techniques; (3) rationale (C) identify theoretical framework (D) identify findings and conclusions: (1) recognize structure of categories

Events	Auditee Tasks	Auditor Tasks
(5) Familiarity with audit trail		(A) identify audit trail components (B) determine audit trail structure (C) identify type I linkages (linkages between audit trail components).
(6) Determine auditability		(A) determine completeness of audit (B) determine comprehensibility (C) determine utility (D) establish linkages
	Discuss	auditability
	(A) revise audit trail as necessary (B) decide whether to proceed	(A) make recommendations as necessary (B) decide whether to proceed
	Decision to contract	continue with

Events	Auditee Tasks	Auditor Tasks
Formal Agreement Phase		
(7) Negotiate contract	(1) establish time line (2) determine goals (3) specify roles (4) arrange logistics (5) determine product outcomes (6) determine format (7) identify renegotiation criteria	
Trustworthiness Phase		
(8) Assess confirmability		
(a) Assess whether findings are grounded in		(A) sample findings (B) identify audit trail components data linked to each finding (C) verify the linkage/ connection

Events	Auditee Tasks	Auditor Tasks
(b) Assess whether inferences are logical		(A) identify analytic strategy(ies) (B) assess match between strategy and data (C) assess application of strategy (D) assess accuracy of the descriptions of phenomena and concepts (E) determine whether inferences are faulty or logical
(c) Assess utility of category		(A) assess clarity of categorical/ conceptual structure (B) assess explanatory power of category structure (C) assess fit between categories, definitions, and examples.
d) Assess degree of incidence of inquirer bias		(A) assess incidence of undisciplined subjectivity

Events	Auditee Tasks	Auditor Tasks
(e) Assess accommodation strategies		(A) assess the design and implementation and confirmability efforts and integration of the outcomes
(9) Assess dependability		
(a) Assess appropriateness of inquiry decisions and methodological shifts		(A) identify inquiry decision (B) identify working hypotheses (C) locate audit trail entries describing inquiry processes, decisions, and rationale (D) locate support for decisions
(b) Assess degree and incidence of inquirer bias		(A) identify decisions and rationale to bound the inquiry (B) identify instances that suggest cooptation (C) identify whether premature judgments (D) assess whether there is a Pygmalion effect (E) assess whether there is a Hawthorne effect (F) determine whether the inquirer is biased through naivete

Events	Auditee Tasks	Auditor Tasks
		(G) determine appropriateness of sampling decisions (H) identify the prevalence of triangulation
(c) Assess the overall design and implementation of efforts, and integration of the outcomes for dependability		(A) identify major design decisions (B) evaluate the rationale for design decisions
(10) Review credibility		
(a) Assess the design and implementation of the strategies and the integration of the outcomes		(A) look for evidence of triangulation (B) look for evidence of peer debriefing (C) look for evidence of member checks
(b) Assess corroboration of methodological choices, data sources, findings, and audit trail.		
Closure Phase		
(11) Feedback and renegotiation	(A) assess accuracy of auditor claims (B) assess adherence/ fulfillment to contract/ agreement	(A) present findings (B) discuss discrepancies and determine nature of closure
(12) Complete agreement		(A) write final report

LETTER OF ATTESTATION

AUDIT OF NATURALISTIC INQUIRY OF LESLIE FARLOW

AUDITOR - FRANKLIN T. CLARK

December, 1989

The researcher addressed the question of whether or not social skills trained in ways which promote generalization will be translated to other settings. Leslie Farlow used the method of naturalistic inquiry to arrive at her thesis conclusions.

I, Franklin T. Clark conducted an audit of her findings in accordance with the procedures for auditing as delineated by Edward S. Halpern in Naturalistic Inquiry by Yvonne S. Lincoln and Egon G. Guba.

Leslie and I met to determine auditability in August, 1989. I reviewed the documentation, raw data, the system of recording observations-Interaction generalization observation (IGO) and the journal entries. We determined auditability and contracted to proceed.

Confirmability

Isomorphism was established through analysis of raw data and methodology to conclusions. Findings were found to be not only grounded in the data, but reinforced through triangulation with journal entries, interviews and observations. Inferences were found to be logical and themes emerged from interviews and observation data. Categories of types of interactions evolved from data and were reinforced through continued observation. Observation methods created a system that allowed for precise recording of interactions and behaviors. Bias was controlled for through member check and openness in interview situations.

Trustworthiness

The researchers' openness to emergent themes was demonstrated by the researcher's pursuit of what influenced the social interaction beyond student performance. During the course of the study, it was apparent to researchers that there were factors other than student performance that influenced the researchers' choice to go beyond quantitative observational data to analyze the descriptive data qualitatively.

Dependability

The researcher used prolonged engagement, persistent observation and triangulation and member checks to increase the likelihood of credible findings and inferences. Researchers were involved with participants eighteen (18) months. Triangulation was accomplished across types of data-IGO's, interviews, journal entries from observers and informants. Three observers collected data and tested their findings with one another. Member checks attained 96% approval of summaries of interviews of informants. Final categories were tested by determining whether or not they emerged from the interviews and were supported by observers.

Emergent Design and Category Structure

Researchers would review summaries and data to develop new lists of categories and questions for interviews. Researchers used a creative process for developing categories and themes which refined and conceptualized social interactions. Six themes emerged from the data: types of interactions, selection of interactions, style of interactions, moodiness (fantasies), behaviors described with disapproval and motivation for negative behaviors. Categories describe and encompass the range of interactions described in interviews and observations

I planned and performed this audit to obtain reasonable assurance of the methodological procedure, inferences, themes-categories, and conclusions of this inquiry. I employed the guiding questions of Halpern and Leslie Farlow had adhered to the process of an audit trail in a naturalistic inquiry which enabled an appropriate and thorough review.

In my opinion, the inquiry adhered to the principles of confirmability, validity and dependability and is a true reflection of an emergent design in a naturalistic inquiry.

Franklin T. Clark

______________________________ ____________________

signature date

Experience: In the Spring of 1986 I had taken a class in qualitative methods and was on an audit team that reviewed a naturalistic study in 1986 under the direction of Robert W. Covert, Evaluation Research Center, The Curry School of Education, University of Virginia, Charlottesville, Virginia.

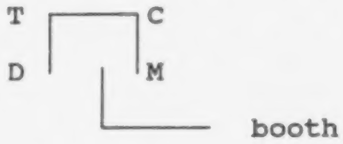
APPENDIX G

SAMPLE RELIABIITY OBSERVATIONS

Contents: Observation 1: Doris, Research Assistant 1
Observation 1: Doris, Author
Observation 2: Doris, Research Assistant 2
Observation 2: Doris, Author
Observation 3: Trudy, Research Assistant 1
Obersvation 3: Trudy, Author
Observation 4: Wendy, Author
Observation 4: Wendy, Author

Interaction Generalization Observation

Student: Doris
Observer: Assistant 1
Location: Fast Food Restaurant
Date: Sixth month
Phase: Intervention 1
Time: 3:13-3:23
Activity: drinking lemonade and talking to friends after school
Position: seated in booth



Identification of persons within 4 feet of student:

Thom, Matt, Chris (high school students from regular program)

[Doris pulls a piece of ice out of her cup]
1 Thom: "Do you like that ice?"
2 Doris: [Pops ice in mouth and laughs.] [positive affect]
3 Group: [Laughs.] [positive affect]
Thom: "Like it better than hot chocolate?"
4 Doris: "No."
5 Thom: "Hot chocolate is better, huh?"
9 Doris: [Burps.]
10 Thom: "What're you supposed to say?"
11 Doris: "Church" [inappropriate--sense]
12 Thom: "Church? Say 'excuse me.'"

13 Doris: [Burps again.] [Sounded fake]. "Excuse me" [inappropriate sense--fake burp]

14 Thom: "Okay."

[end of cycle]

[Doris picks up foil ashtray.]

15 Thom or Chris: [said something observer missed.]

16 Doris: "Watch me. Watch me." [Spins ash tray on finger and laughs.] [positive affect]

17 Chris: "All right"

[end of interaction cycle]

18 Thom: "You riding the bus home today?"

19 Doris: "Yes."

20 Thom: "You are?"

21 Doris: "No."

22 Thom: "Where do you live at?"

23 Doris: "I don't remember." [inappropriate sense--Doris knew address.]

24 Thom: [Looks over to observers for answer.]

25 Author:"Down ___ Street."

26 Thom: "Down ___ Street?"

27 Doris: "Yeah."

[end of interaction cycle]

28 Thom: "You like that watch? It's a fancy watch." [Laughs and smiles.]

29 Doris: "Yeah."

30 Chris: "It's a neat watch."

32 Chris: "Do you like 'Wheel of Fortune?'"

33 Doris: "Yeah." [Laughs and pushes Thom.] [[positive affect] [inappropriate orientation and distance]

34 Matt: "You like that?" [referring to Wheel of Fortune]

35 Doris: "Yeah."

36 Thom: "You like this song?"

37 Doris: "Yeah."

38 Thom: "Its a good song by Brian Adams. You like Brian Adams?"

41 Doris: [No response to above question] "Watch out. Watch out." [wants to flick ice across the table.]

42 Thom and Chris: "All right." [Laughs] [positive affect] [Doris flicks the ice across the table.]

43 Doris: "I did it. I did it!" [Smiles.] [positive affect]

44 All: [Laughter.] [positive affect]

45 Thom: "You only watch 'Wheel of Fortune?'"

46 Doris: "Yeah."

47 Chris: "You only watch it? You watch 'Price is Right,' too?"

48 Doris: "Yeah. I do."

49 Chris: "That's a good show, isn't it?"

50 Doris: "Uh-huh." [yes]

51 Thom: "It's nice out, isn't it Doris?"

52 Doris: [? Mumbled.] [inappropriate--volume]

53 Thom: "It's nice out, isn't it Doris?"

54 Doris: "Yeah."

55 Thom: "You like it warm?"

56 Doris: "Yeah."

57 Thom: "Pretty soon you'll be able to swim. You like to swim?"

58 Doris: "I'm scared."

60 Thom: "You're scared? Oh."

61 Doris: "Yeah." [inappropriate--orientation]

62 Chris: "Where are you going on vacation?"

63 Doris: [Mumbles.] [inappropriate--volume]

64 All: [Many simultaneous comments re: vacation. Couldn't hear.]

[end of interaction cycle]

66 Chris: "Did Chrissy pinch you today?"

67 Doris: "No."

68 Chris: "She didn't go after you?"

69 Doris: "No, uh-huh."

70 Thom: "You got a boyfriend, Doris?"

71 Doris: "No. Ain't got one."

72 Thom: "You ain't got one?" [Feigns surprise and laughs.] [positive affect]

73 Doris: "Stop, Todd." [Laughs, pushes him.] [positive affect.]

74 Thom: "I'm sorry. Sorry, Miss Doris . . ."

75 Thom: "What's your last name, Doris?"

76 Doris: "___."

77 Thom: "Doris ___, nice name."

78 Matt: "Do you know Brad?"

79 Doris: "What? No."

80 Thom: "Do you know Mark?"

81 Doris: "Yeah." [inappropriate orientation]

82 Thom: "Is he your old boyfriend?" [Laughs] [positive affect]

83 Doris: [No response.]

[end of interaction cycle]

[Doris writing on table with finger.]

88 Thom: "What're you writing?"

89 Doris: [names the letters she's writing on the table.]

90 Matt: "A. E. I. O. U. What's that? Vowels, right?"

91 Doris: "E. R. S. T. X. Y. Z."

92 Thom: "That's right, alphabet letters."

93 All: [Guys sing "abc..." and laugh.] [positive affect]

94 Doris: "They're my friends at school."

95 Thom: "Your friends at school? We're all your friends"

96 Doris: [Looks at each of them.] [inappropriate orientation]

97 Thom: "They're your friends, too." [Points to observers]

[end of interaction cycle]

[Matt stands up and walks to door. Returns, stands by Doris]

99 Matt: "See you later. Gotta go."

102 Doris: "Hey, Matt, stay here. Come here."

103 Matt: "What?"

104 Doris:"Nice seeing you. See you." [Smiles.] [positive affect]

105 Matt: "All right."

[Matt leaves.]

106 Doris:"Have a nice day. Bye"

107 Matt: "Bye."

[end of interaction cycle]

108 Thom: "You like Matt?"

109 Doris:"Yeah."

110 Chris:"He's a nice guy, right?"

113 Doris:"Yeah."

[Thom points to Doris's drink.]

114 Thom: "You drinking all that stuff?"

115 Doris:"I like it."

116 Chris:"You like that, huh? Drinking it all. You had more than mine."

[Doris moves over to sit by Chris.]

117 Chris:"We're eating a lot at Wrestling Banquet. What'll you eat tonight?"

118 Doris:"Birthday cake." [And laughs.] [positive affect] [inappropriate sense]

119 Chris and Thom: "Birthday cake !?!"

[end of observation time--9:24m in interaction]

Interaction Generalization Observation

Student: Doris
Observer: Author
Location: Fast Food Restaurant
Date: Sixth month
Phase: Intervention 1
Time: 3:13-3:23

Summary:

As soon as Doris got out of the car, she ran up the hill to the road. Chris chased her. Doris seemed confused about going out. I don't think she understood what was going on. When we got inside, she stayed away from the counter. We got lemonades and cokes and sat down.

A new friend came along. Chris introduces Doris to Matt in the parking lot. She was embarrassed. Her reaction was almost scared. She pulled away from him and said she didn't like him. After a pause, she patted him on the back and laughed.

This is the most interactive 10 minutes we have recorded. It was difficult to keep up with all the talk and to observe reactions, too. The group seemed jovial. They smiled and joked more than a group I've recorded yet.

Doris was the focus of the group. Most of the interactions were questions directed to Doris. The majority of Doris's responses were one or two words (or grunts) or nods.

After the conversational recording, Thom and Chris teased Doris about liking Matt. That seemed real "typical" teenager to me. Doris went over to the video games during a break. Thom and Chris followed her and she played a game. The boys were mostly showing her how, I think.

Activity: getting a Coke at Fast Food Restaurant.

Position: Doris is sitting next to Thom, across from Matt. Matt was next to Chris who was across from Thom.

Identification of persons within 4 feet of student:
Thom, Matt, Chris (high school students)

1 Thom: "You like that ice don't you?" [positive affect]

2 Doris: [Picking ice out of soda.] "uh-huh" [Mumbled.] [inappropriate orientation]

3 Thom: "You like that ice better than hot chocolate?" [positive affect]

4 Doris: "No."

5 Thom: "You don't like that better? Its hot for hot chocolate."

6 Doris: "on a diet."

7 Thom: "you're on a diet?" [positive affect]

8 Doris: [No response.]

[end of interaction cycle]

9 Doris: [Burps.] [inappropriate sense]

10 All: [sort to jumps and laughs]

Thom: "What do you do when you do that?" [negative affect]

11 Doris: [no response]

12 Thom: "You say 'excuse me.'"

[end of interaction cycle]

16 Doris: [Picked up ashtray and dropped it between her and Thom. Said something I couldn't hear] [positive affect] [inappropriate volume]

18 Thom: "You ride the bus?"

19 Doris: "Yeah."

22 Thom: "Where do you live?"

23 Doris: "3:30" [inappropriate sense]

24 Thom: [looked at observer and said] "3:30?"

25 Author: "Down ____ Street."

28 Thom: "You like that watch?"

29 Doris: "Yeah."

30 Matt: [took off watch and said] "Do you like that?"

31 Doris: [nodded and looked at watch.]

36 Thom: "You like that music?" [positive affect]

37 Doris: [shook head.]

38 Thom: "No. Do you know who that is? Brian Adams?" [positive affect]

39 Doris: "Brian Adams."

40 All: [group nodding and smiling] [positive affect]

45 Thom: "You like to watch 'Wheel of Fortune?'" [positive affect]

46 Doris: [nodded]

47 Thom: "Is that the only show you watch? What about 'Truth or Consequences'?"

48 Doris: [not understandable] [inappropriate volume]

51 Matt: "It's nice out there."

52 Doris: [No response.]

55 Thom: "It's warm. You like it when it's like this?"

56 Doris: [No response.]

57 Thom: "You like to swim, Doris?" [positive affect]

58 Doris: [Shakes head no.]

59 Chris: "No, you don't like to swim?"

60 Matt: "You afraid to swim?"

61 Doris: "No, it's fine." [inappropriate orientation and volume]

[Matt looked around the table with a puzzled look on his face. Thom said: "She said, 'It's fine.'"]

62 Thom: "Where are you going on vacation this summer?" [positive affect]

63 Doris: [Mumbled.] [inappropriate volume]

[end of interaction cycle]

[song on Musac changed]

64 Doris: "I like this song."

65 [Speaker missing]: "You like that song?"

66 Chris: "Cathy pinch you today?"

67 Doris: "What?"

68 Chris: "Cathy pinch you?"

69 Doris: [Shook head.]

70 Chris: "You got a boyfriend?" [positive affect]

71 Doris: "No."

72 Thom: "No boyfriend?" [positive affect]

78 Matt: "You know Brad?"

79 Doris: "No." [shakes head]

80 Matt: "You know Mark?"

81 Doris: [Shakes head.] [inappropriate orientation]

82 [Speaker missing]: "You know [another boy's name]?"

83 Doris: [Shakes head.] [inappropriate orientation]

84 [Speaker missing]: "You know [another boy's name]?

85 Doris: [Whispers to Thom.] [inappropriate volume] [positive affect]

86 Matt: "You keeping a secret from me and Chris now?" [positive affect]

75 Thom: "What's your last name?"

76 Doris: "___."

77 Thom: "___? [to observer]

[I nodded.]

78 Matt: "Doris ___."

87 Doris: [Nudges Thom and traces letters with her finger on the table.] [positive affect] [inappropriate sense]

88 Thom: [Watches her, tries to guess letters.] "E? H?"

89 Doris: [Continues to write letters.] [inappropriate sense]

93 All: [Thom figures out it is ABC's.] "E F G H I ..."

[The other two join in and say abc's. Boys were smiling.] [positive affect]

95 Chris: "You have lots of friends at school?"

96 Doris: [Looks down.] [negative affect] [inappropriate orientation]

97 Thom: "Yeah you do, we are your friends. You know us." [Points to observers.] "They're your friends."

99 Matt: [Explains to Chris and Thom that he's leaving and says bye to them, then to Doris] "Bye." [positive affect]

100 Doris:[No response.]

101 Thom: "Say bye to Matt." [negative affect]

[end of interaction cycle]

[Matt is walking towards door]

102 Doris:[Leans out of booth and calls Matt back.]

[Matt comes back.]

103 Matt: "What?"

104 Doris:[something not intelligible] [inappropriate volume]

105 Matt: "What?"

106 Doris:"I like your sweater." [inappropriate sense]

107 Matt: "Thanks!" [And laughs.] [positive affect]

[end of interaction cycle]

[Matt leaves again.]

108 Thom: "You like Matt?" [positive affect]

109 Doris:"Yeah."

110 Thom: "You love him?" [They laugh.] [positive affect]

111 Doris:[Doris moves to the other side of the table.]

112 Thom: [Said something about her moving.] [positive affect]

113 Doris:[Laughs] [positive affect]

[end of interaction cycle]

117 Chris:"We're going to a banquet tonight. We're going to eat a lot of food."

118 Doris:"Where?"

119 Chris:"At the sports banquet."

[end of observation time--9:35m in interaction]

Interaction Generalization Observation

Student: Doris
Observer: Research Assistant 2
Location: Workshop Lunch Room
Date: Seventeenth month
Phase: Follow-up
Time: 12:10-12:20

Preceding Events: Doris entered break room where Leslie and I were waiting. Other clients had already entered and were seated. Doris sat next to Linda (a workshop co-worker), then went to buy a soda. She saw us and waved "hello," then she continued with lunch business. Leslie let Doris know we were going to watch her. Carol spoke to us, commentary on Doris improved eye contact and work habits since she spoke to her about work goals.

Summary: I could not hear Doris's comments to other during the IGO, but she did speak to Linda several times during lunch. Doris continued eating throughout the observation. Doris was appropriate.

Following Events: Due to the snowy weather, the Workshop closed. So Leslie called Doris's mother and arranged for Doris's ride home. Doris and the other clients finished lunch and sat at the table. Doris spoke to Linda, but again I could not hear any of their comments. Doris willingly went home with me.

Reactions: It was great to see Doris keep her head up and remain appropriate throughout the IGO and during lunch.

Activity: eating lunch

Position: sitting at table with other clients, approximately 20 others.

Identification of persons within 4 feet of student: Linda (a client), Sam (a client), Carol (Workshop Supervisor)

[Doris is eating lunch in the lunchroom with approximately 20 other clients. Carol talks to a male client while they stand behind Doris.]

Doris: [looks, then returns to eating.]

[Carol and client do not respond.]

[end of interaction cycle]

[Carol and the man return to their seats. Doris watches others enter breakroom.]

Doris: [Speaks to Linda, could not hear.]

Linda: [No response.]

[Doris eats with a spoon and watches others, eats sandwich, uses napkin.]

Doris: [Taps Linda's arm and points to someone.]

Linda: [Looks at who Doris points to.]

[end of interaction cycle]

[Continues eating sandwich. Man walks behind. Doris ignores. Sam burping]

Doris: [looks at him.] [speaks, could not understand.]

Sam: [does not respond.]

[end of interaction cycle]

[Linda throws away trash. Doris watches Sam and others who talk. Woman comes over and asks others for change. Doris eats. Woman leaves. Doris eats.]

Doris: [Waves to me.]

Nelda: [Smiles.] [positive affect]

Doris: [Speaks to Linda]

Linda: [Looks while Doris speaks.]

[Client stands next to Doris. Sam walks behind her. Client leaves. Linda giggles when Sam giggles. Doris continues to eat.]

Doris: [Turns to Linda and speaks. Hands Linda a paper towel.]

Linda: [Throws away trash for Doris.]

[Linda returns.]

Linda: [Touches Doris on the shoulder.]

Doris: [Speaks to Linda.]

Linda: [No response.]

[end of observation time--1:55m of interaction.]

Interaction Generalization Observation

Student: Doris

Observer: Author

Location: Workshop Lunch Room

Date: Seventeenth month

Phase: Follow-up

Time: 12:10-12:20

Preceding Events: Nelda and I arrived before Doris. Doris and Linda came in together. Doris got them paper towels. They sat down and started eating. Just as we were ready to begin, Carol spoke to me so I started over. By the time we started, lunch was nearly over. Carol told Doris something just before we started observing.

Summary: Not much action. Doris looked at the other interactions. She initiated a couple of times to Linda about the business at hand.

Following Events: They closed the Workshop due to snow. I asked Doris if she wanted to go. I went and called Doris's mother. Doris and Nelda left.

Reactions: I decided that sitting at the table with Doris would be too intrusive. So we sat too far away to hear clearly.

Activity: eating lunch

Position: next to Linda

Identification of persons within 4 feet of student:

Linda (a client), Sam (a client), Carol (Workshop

Supervisor)

[Doris is eating lunch, next to Sam. Doris is looking at her sandwich. Carol and Sam talk. Sam tells Carol that another client stole her lunch.]

Doris: [Looks.]

[Carol and Sam continue talking.]

[Doris eats. Carol moves around the table talking. Doris watches. Carol leaves.]

Doris: [Eye contact with Linda.]

Linda: [Eye contact and smile.] [positive affect]

[end of interaction cycle]

Doris: [Taps Linda's shoulder. Points to her mouth.]

Linda: [Uses paper towel as a napkin.]

[end of interaction cycle]

Doris: "Hey."

Linda: [Eye contact.]

[Doris looks at other clients.]

Doris: "Kay?" [Maybe to man who coughed or to boy who is leaving.]

[No one responds.] [end of interaction cycle]

[Linda takes her bag to garbage and returns. Woman comes and talks to Sam and another client about money. Doris watches. Woman leaves.]

Doris: [Could not hear bid to Linda.]

Linda: [Looks and nods.]

Doris: [Talks with napkin over mouth.] [inappropriate orientation.]

Linda: [Eye contact.]

[end of interaction cycle]

[Guy comes and stands behind Doris. He leaves. Linda looks at man and Sam and laughs. Doris watches.]

Doris: [Talks. Sends Linda for a paper towel.]

Linda: [Gets up and leaves.]

Doris: "Come on, Linda." [Gestures.]

Linda: [returns and hands Doris paper towel.]

[end of observation--:58m of interaction]

Interaction Generalization Observation

Student: Trudy

Observer: Assistant 1

Location: Franchise Motel, laundry room

Date: Ninth month

Phase: Intervention 1

Time: 10:00-10:10

Summary:

When I arrived, Trudy seemed a bit grumpy--slamming carts and telling Joyce to "get off my back." She also thought it was break, but she had half the second floor to finish. she did the work without comment and made no more statements or 'grumpy' gestures after returning for break. She sat on the desk with Wendy and Linda very close by (Wendy leaned on her). She ignored both of them except when Wendy leaned too close to her coffee.

Trudy had poor eye contact during teaching and conversation. She couldn't ask about my wedding, so Leslie switched the topic to talking about what she did while I was away. She didn't seem very eager to talk to me since she stared at everything but me (her coffee cup, the ceiling). She made very few additions to the conversation. She mostly repeated what I said.

Trudy's social bids were generally using manners when they were appropriate. She offered two greetings and initiated with Leslie and I twice. There were two initiations counted as appropriate because she'd been told not to speak with us as we worked. Her inappropriate responses were mostly because of orientation and sense.

She returned to work after break and showed good on-task behavior while she loaded and unloaded the washer and dryer.

Activity: breaktime

Position: laundry room desk, standing and fixing coffee

Identification of persons within 4 feet of student:
Wendy

[Standing at desk, fixing coffee.]

Wendy: "Hi, Trudy."

Trudy: "Hi, Wendy. How are you?"

Wendy: [No response.]

[Linda enters and sits at desk.]

Trudy: "Wendy, how are you?"

Wendy: [No response.]

[Trudy walks between observers to go to trash.]

Trudy: "Excuse me, you two."

Observers: [No response.]

[Returns to desk, between observers.]

Trudy: "Excuse me."

Observers: [No response.]

[end of interaction cycle.]

Wendy walks to Linda and talks to her. Trudy sits on desk. Wendy leans on her.]

Trudy: "Don't get on my coffee, Wendy."

Wendy: [No response.]

[end of interaction cycle]

[Trudy looks at the observers.]

Trudy: "Me and Wendy's taking a break. Give us a minute to get ready, then we'll work. Hold yourself tight."

[Observers do not respond.] [Wendy walks by and trips onto Assistant 1.]

Wendy: "Excuse me." [To Kelly.] "Do you forgive me?"

Kelly: "Sure."

Trudy: "Do you forgive Wendy?" [inappropriate--sense, stereotypic]

Kelly: [No response.]

[end of interaction cycle]

Trudy: "It's about 2:00."

Students: [No response.]

[end of interaction cycle]

Trudy stares at ceiling light and holds coffee. Resumes drinking coffee. Stares at coffee.]

Trudy: [Something inaudible in Linda's direction, 2-3 syllables, seemed undirected.] [inappropriate orientation, volume, and sense]

Linda: [No response.]

[Wendy and co-worker talking.]

Trudy: "Yeah. Now, what does she want?" [Looking at

Wendy and Co-worker]

Wendy and Co-worker: [No response.]

[end of interaction cycle]

[Co-worker leaves. Trudy finishes coffee. Trudy looks at observers.]

Trudy: "Whew. Now, what else do you want?"

Observers: [No response.]

[end of interaction cycle]

Trudy: [Something inaudible to Leslie or Linda, 2-3 syllables]

Linda: [No response.]

[end of interaction cycle] [end of observation--:17m of interaction]

Interaction Generalization Observation

Student: Trudy

Observer: Author

Location: Franchise Motel, laundry room

Date: Ninth month

Phase: Intervention 1

Time: 10:00-10:10

Summary: It was Kelly's first day back, so we did reliability. Dave, Joyce, and Brandon were having a meeting--so the interaction group was limited for Trudy. She asked me questions a couple of times which I ignored. She was being appropriate, I wasn't.

I'd been late--so I race in, recorded, then jumped right into training, so I did not have a good awareness of preceding behaviors. There were lots of short interaction cycles--but that's probably because Trudy did not have fluent conversation partners.

Activity: fixing coffee at the desk in the laundry room.

Identification of persons within 4 feet of student:

Wendy

[Wendy is sitting on stoop in front of washer. Trudy is at desk doing coffee.]

Wendy: "Hi, Trudy."

Trudy: "Hi, Wendy. How are you?"

Wendy: [No response.]

[Linda walks in and toward desk.]

Trudy: "Hi, Linda. How are you?" [inappropriate orientation]

Linda: [No response.]

[end of interaction cycle]

[Trudy walks past observers and Wendy to throw trash away.]

Trudy: "Excuse me, you two."

Observers: [They let her pass.]

[end of interaction cycle]

[Linda sits in chair. Wendy walks over to Linda.]

Wendy: "Linda, Linda."

Trudy: "Huh?"

Wendy: [to Linda] Want to share?"

[end of interaction cycle]

[Wendy leans on desk and reaches out to get chips from Linda.]

Trudy: "Don't spill my coffee, Wendy."

Wendy: [moves]

Trudy: "Me and Wendy's taking a break. We get our coffee and take a break. [pause] Hold yourself tight, Linda. We are taking a break."

[end of interaction cycle]

[Wendy walks toward Kelly and stumbles.]

Wendy: "Excuse me. Will you forgive me, Kelly?

Trudy: "You'll forgive her?" [inappropriate sense]

Kelly: "I'll for give you, Wendy."

Trudy: "It's about 2:00." [inappropriate--sense--its 10:45]

Linda: "Yeah."

[end of interaction cycle]

[Trudy sits by Linda drinking coffee.]

Trudy: [Makes bid to Linda. I could not hear.] [inappropriate orientation, volume, and sense]

Linda: [Responds with grunt.]

[end of interaction cycle]

[Leslie moved to hear.]

Trudy: "What do you want, now?"

Leslie: [No response.]

[Wendy has moved to door and is talking to a co-worker]

Trudy: "Now, what else do you want?"

Leslie: [looked at her and smiled.] [positive affect]

[Linda burps.]

Trudy: "What do you say, Linda?"

Linda: "Excuse me."

[end of interaction cycle] [end of observation--:35m of interaction]

Interaction Generalization Observation

Student: Wendy

Observer: Author

Location: Franchise Motel Lunchroom

Date: Sixteenth month

Phase: Follow-up

Time: 12:02-12:12

Activity: eating lunch

Position: Wendy at end of table by door, Trudy next to her. Sharon (co-worker) at end of table.

Identification of persons within 4 feet of student: Trudy

Preceding Events: Wendy and Trudy had been eating lunch together. Sharon came in and sat down too. Trudy and Wendy did not talk much. With Sharon, they talked about being full and what they had for lunch.

Summary: Wendy talked about the old standbys--graduation, how old folks were, money for a drink, and liking people. some of the conversation was appropriate, but much of it became repetitive--so [inappropriate--sense]. It was a changing context also. They finished lunch and went back to work during the IGO.

Following Events: Wendy and Trudy settled back into work. Nelda and I finished writing up notes.

Reactions: Hard IGO to do, but seemed typical Wendy. [sitting and eating in silence]

Wendy: "You going to come to my graduation?"

Sharon: "Yes, I got a son who's going to graduate, too. His name's Jeremy."

Wendy: "How old is he?"

Sharon: "Eighteen."

Wendy: "Eighteen?"

Sharon: "Eighteen."

Wendy: "When his birthday?"

Sharon: "December."

Wendy: "How old he be on his birthday?" [inappropriate--sense]

Sharon: "He'll be 19."

Wendy: "How old is Jeremy?" [inappropriate--sense]

Sharon: "Eighteen."

Wendy: "I'll be 23 on my next birthday. That's old."

Sharon: "That's not old."

Wendy: "Huh?"

Sharon: "I said, 'That's not old.'"

[end of interaction cycle]

[Sharon and Trudy talk about lunch and work.]

Wendy: "I'm going to find me a job next week."

Sharon: "You going to find you a job?"

Wendy: [Nods.]

Sharon: "Jeremy got a job, too."

Wendy: "Jeremy going to find a job, too?"

Sharon: "He's an electrician. He got a job already, like you."

Wendy: "Like me?"

Sharon: "Yes, like you. He's going to graduate, but he's already go a job."

Wendy: "How old is Jeremy?" [inappropriate--sense]

Sharon: "Nineteen."

Wendy: "I'll be 23 on my next birthday."

Sharon: "Uh-huh."

[end of interaction cycle]

[Sharon gets up and leaves.]

Trudy: "Hey, Wendy. Here's your milk carton." [Waves the carton.]

Wendy: [Looks at her.]

[end of interaction cycle]

[Trudy says to us, "Wendy's full." Wendy gathers lunch trash, walks to the trash can, sees Andrea (assistant teacher) standing there talking to Joan (co-worker).]

Wendy: "Hey, Andrea." [Holds her hand.] [inappropriate--sense]

Andrea: "Hey, Wendy."

[Andrea and Joan talk for awhile.]

Andrea: "Wendy, that's a beautiful ring you got there."

Wendy: "That's my high school ring."

Andrea: "I'm so glad you got it."

Wendy: "I can't wait till I walk down the aisle."

Andrea: "I want to see you walking down that aisle."

Wendy: "Can I have a soda?"

Andrea: "Did you bring any money?"

Wendy: "Uh-uh [no]. I'm poor."

Andrea: "I'm poor, too. See?" [Takes out her money and counts.] "If you had a dime, I'd split one with you."

Wendy: "Oh, well."

Andrea: "Oh, well."

[Sharon come in and goes to check dryer.]

Wendy: [Asks Sharon for money.]

Sharon: [Gives her some.]

[Trudy come in and stands by Wendy, who is between Andrea and Sharon.]

Andrea: [Tells her to save the money for later.]

Wendy: "Huh?"

Andrea: "What do you say?"

Wendy: "Thank you. I'm going to save it for later."

Sharon: "Your welcome, that's alright."

Wendy: "Thank you very much."

[end of interaction cycle]

[Wendy goes to get soda in hallway. Melissa (co-worker) comes out of room and goes into hallway.]

Wendy: "Melissa, Melissa, come here. I put some money in and didn't get no soda."

Melissa: "How much money did you put in?"

Wendy: "Fifty cents."

Melissa: "Where did you put it?"

[Melissa is standing next to Wendy now.]

Wendy: "Right here." [Points to place on machine.]

Melissa: "That's where dollars go."

[Sharon now comes over to the machine. Melissa explains problem to Sharon.]

Wendy: [Wendy said something to Sharon.]

Sharon: "I thought you were going to save it until later."

Wendy: "Okay, I'll save it for later. Thank you, Sharon." [Hugs her.] [inappropriate sense and distance]

Sharon: [Hugs back.]

[end of interaction cycle]

[Wendy goes back to laundry room.]

Wendy: "Hey, Andrea. I going to save my money."

Andrea: "That's good. You can have a soda at school."

Wendy: "When I get back to school. I can buy one myself."

Andrea: "That's right."

Wendy: "Leslie told me her going to talk to my mother about going over to Bubbles."

Andrea: "That's nice."

Wendy: "Her going to talk about going over to Bubbles."

Andrea: "That's nice."

[Trudy and Andrea are talking.]

Wendy: "How's Jerry (Andrea's husband)?" [Interrupts, also should be working.] [inappropriate--sense]

Andrea: "He's fine. [pause] The laundry room looks nice."

Wendy: "Help me fold sheets, Andrea."

Andrea: "I'll help you if we have any. I don't see any sheets in the basket."

[Melissa walks into the laundry room.]

Wendy: "Melissa, Melissa."

Melissa: [No response.]

Wendy: "Melissa, Melissa, guess what. I like you."

Melissa: "I like you, too."

Wendy: "You're my favorite person."

Melissa: "You're my favorite, too."

[Melissa goes out after checking dryer.]

Andrea: "I'm jealous."

Wendy: [something to reassure her]

Andrea: "Okay."

Wendy: "I'll take you out to lunch one day."

Andrea: "Okay. I'll hold you to it."

[end of observation time--7:33m of interaction]

Interaction Generalization Observation

Student: Wendy

Observer: Assistant 2

Location: Franchise Motel lunchroom

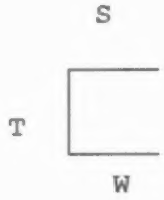
Date: Sixteenth month

Phase: Follow-up

Time: 12:02-12:12

Activity: eating lunch

Position:



Identification of persons within 4 feet of student:

Trudy

Preceding Events: Wendy and Trudy began lunch while Leslie and I waited in the hall for other co-workers to joining them for lunch. Sharon came in and ate with Wendy and Trudy, so we began the IGO.

Summary: Wendy and Sharon conversed about graduation and Sharon's son and ages. After Sharon left, Wendy go up to throw away her trash in the laundry room. Andrea and Sharon were there, too. Then Wendy went to the coke machine and engaged Melissa and Sharon to help her. Then it was back into the laundry room to work.

Following events: Wendy and especially Trudy had difficulty getting back to work after lunch. Wendy finally did, but Trudy wandered and talked to anyone she could.

Reactions: It was difficult to get all the dialogue with Wendy moving from room to room.

Others: The employees don't seem to mind Wendy asking for soda or money although it appears excessive to me.

[Eating an apple.]

Wendy: "You going to come to my graduation?"

Sharon: "Yeah. I have a son graduating."

Wendy: "Uh-hum. How old he?"

Sharon: "He's 18 years old."

Wendy: "He'll be at graduation."

Sharon: "He'll be at graduation."

Wendy: "How old is he?" [inappropriate sense]

Sharon: "Eighteen."

Wendy: "I'll be 23 next birthday."

Sharon: "Uh-huh."

Wendy: "That's old."

Sharon: "That's not old."

Wendy: "Huh?"

Sharon: "That's not old."

[end of interaction cycle]

Wendy: "After graduation, I find a job."

Sharon: "You'll find a job. My son has a job."

Wendy: "Where he work?"

Sharon: "He's an electrician."

Wendy: "Uh-hum. I'll work next year."

Sharon: "You work now. You're a hard worker."

Wendy: "You proud of me?"

Sharon: "Yes, I'm proud of you."

Wendy: "How old Jeremy?" [inappropriate sense]

Sharon: "He's 18."

Wendy: "I'll be 23, next birthday." [inappropriate sense]

[end of interaction cycle]

[Sharon leaves.]

Trudy: "Wendy, here's your milk."

Wendy: [No response.]

[end of interaction cycle]

[Wendy gets up to toss trash and sees Andrea in laundry room. So is Sharon.]

Wendy: "Andrea." [interrupts] [inappropriate--sense]

Andrea: "Hi, Wendy."

[Wendy stands by Andrea while Andrea talks to Sharon. Wendy shows ring to Andrea.]

Andrea: "Wendy, a beautiful ring."

Wendy: "I got it."

Andrea: "You finally got it."

Wendy: "Uh-hum. I'll walk down the aisle."

Andrea: "Walking down the aisle."

Wendy: "You gonna come?"

Andrea: "No, I don't think so."

Wendy: "You have money?"

Andrea: "No money, Wendy."

Wendy: "You have a dime?" [to Sharon.]

Sharon: [Looks in pocket, hands Wendy 10 cents.]

Andrea: "What you gonna say?"

Wendy: "Thank you." [Not to Sharon, but to Andrea.] [inappropriate orientation]

Andrea: [nods towards Sharon for Wendy to thank her.]

Wendy: "Thank you very much."

Sharon: "You're welcome."

[end of interaction cycle]

[Wendy leaves room to buy coke.]

Wendy: "I put my money in." [To Melissa, who is in the hall.]

Melissa: "Right here?"

[Melissa walks over to Wendy.]

Wendy: "Uh-hum."

Melissa: [Helps with soda machine.]

[Sharon comes over to machine]

Sharon: [Speaks, but I don't hear.]

Wendy: [Hugs Sharon.] "I love you." [inappropriate--sense]

Sharon: "Okay." [Says more in a soft voice.]

[end of interaction cycle]

[Wendy enters laundry room, joining Andrea and Trudy.]

Wendy: [Talks to Andrea about school.]

Andrea: "Back at school."

Wendy: "At school?"

Andrea: "When we're at school. [pause] I checked. These are dry."

[Wendy moves to dryer.]

Wendy: "Leslie talk to my mom about going to Bubbles."

Andrea: "Nice."

Wendy: "About going to Bubbles."

Andrea: "Nice."

Wendy: "How's Jerry (Andrea's husband)?"

Andrea: "He's fine. [pause] These are dry."

Wendy: "Okay."

Andrea: "It looks so nice in the laundry room today."

[Wendy is by the dryer.]

Wendy: "Help me fold sheets?"

Andrea: "Yeah. I'll help you."

[Melissa walks by.]

Wendy: "Melissa, guess what?"

Melissa: "What?"

Wendy: "I like you. You're my favorite."

Melissa: "Thank you." [Walks away.]

Andrea: "I'm hurt."

Wendy: "I like you, too, Andrea."

[end of observation--7:29m of interaction]

APPENDIX H

CODING RELIABILITY FOR TOPIC OF DISCUSSION

The following table illustrates the inter-rater reliability for topic of discussion. While coding data, each rater made a note of the topic of conversation for each new cycle and each time the topic changed. Topics generated by each independent coder are listed in columns one and two. The third column indicates the agreement between coders. Blank spaces (---) in a column indicate that the coder did note a change in topic when the other coder did record a change.

Coder 1 Topic	Coder 2 Topic	Agreement
food/diet/sick	food/diet/sick	agree
food	food	agree
prompt	prompt	agree
father/family	father/family	agree
eye contact prompt	prompt	agree
father/family	father/family	agree
I don't remember	I don't know	agree
---	prompt	disagree
drawing	drawing	agree
prompt/drawing	prompt/drawing	agree
greeting	greetings	agree
K.'s recent activities	K.'s activities	agree
Doris's activities/ father/church	Doris's activities	agree
what to talk about	prompt	agree
picnics	picnic	agree
eye contact/picnics	---	disagree
sentences	prompt	agree
apples/picnics/ eating	---	disagree
prompt	prompt	agree
picnic	picnic	agree
eye contact	prompt	agree

Coder 1 Topic	Coder 2 Topic	Agreement
cards at picnic	picnic	agree
---	school books	disagree
---	picnic	agree
back to work	going back to work	agree
prompt	prompt/look	agree
working	go back to work	agree
prompt	prompt/look	agree
work	go back to work	agree
prompt	prompt/look	agree
work	work	agree
prompt	prompt/look	agree
work	work	agree
prompt	prompt/look	agree
resting bones	---	disagree
prompt	prompt/look	agree
work	work	agree
prompt	prompt/look	agree
work/pay	work	agree
prompt	prompt/look	agree
work	work	agree
prompt	prompt/look	agree
spending work money	money	agree
prompt	prompt	agree

Coder 1 Topic	Coder 2 Topic	Agreement
H.'s watching tv after work	leisure time/tv	agree
prompt	prompt/look/hand	agree
D.'s watching tv after work	leisure time/tv	agree
prompt	prompt/look	agree
D.'s watching tv after work	leisure time/tv	agree
prompt	prompt/look/hand	agree
T.'s activities at home/watching stories	leisure time/tv	agree
prompt	prompt/look/hand	agree
watching stories	leisure time/tv	agree
prompt	prompt/look	agree
watching tv last night and napping	leisure time/tv	agree
General Hospital	leisure time/tv	agree
---	Don't know	disagree
---	prompt/look	disagree
greeting	greeting	agree
T.'s haircut	haircut	agree
prompt/eye	prompt/look	agree
the haircut	haircut	agree

Coder 1 Topic	Coder 2 Topic	Agreement
prompt/eye	prompt/look	agree
what next	---	disagree
haircuts	haircuts	agree
---	prompt/look	disagree
prompt	prompt/look	agree
hair styling	hair cuts	agree
prompt	prompt	agree
haircuts	haircuts	agree
greeting	greeting	agree
greeting	greetings	agree
prompt/food	prompt/food	agree
look at K.	prompt	agree
food	food	agree
prompt	prompt	agree
food	food	agree
greeting	greeting	agree
work	work	agree
greeting	greeting	agree
work/prompt/cooking	work	agree
L.'s cooking dinner/ juices	home life	agree
eating out/ MacDonald's	eating out/ MacDonald's	agree
Sizzler	MacDonald's	disagree

Coder 1 Topic	Coder 2 Topic	Agreement
MacDonald's	MacDonald's	agree
Putt-putt	Putt-putt on Mon.	agree
volume prompt	prompt	agree
Putt-putt	Putt-putt	agree
---	MacDonald's	disagree
---	Putt-putt	disagree
MacDonald's	MacDonald's	agree
K. is a good woman	Don't know/date	disagree
MacDonald's	MacDonald's	agree
swimming	swimming	agree
MacDonald's	MacDonald's	agree
greeting	greeting	agree
weather/cold/spring/ clothing	weather activity and attire	agree
work	work	agree
work	work	agree
---	broke/restaurant	disagree
lunch	lunch	agree
work	work	agree
magazine/sleeping bags/Christmas tree/laundry	magazine/wash	agree
break	break	agree
magazine	magazine	agree

Coder 1 Topic	Coder 2 Topic	Agreement
break	break	agree
magazine	---	disagree
high school ring	class ring	agree
magazine	magazine	agree
restaurant	activity at hand	disagree
morning routine	restaurant	disagree
eye	prompt	agree
Restaurant trip	Restaurant	agree
---	prompt	disagree
---	laundry	disagree
---	Restaurant	disagree
forgot fork and need new one	fork	agree
D.'s liking ketchup	ketchup	agree
D.'s choking	D.'s health while eating	agree
greeting exchange	greeting	agree
orange	orange	agree
joking/flirting/teasing	playing with B.	disagree
liking B.	---	disagree
Special Olympics	Special Olympics	agree
smoking	smoking	agree
foods	food	agree

Coder 1 Topic	Coder 2 Topic	Agreement
food	food	agree
movies	movies	agree
prompt	directions to look	agree
bull's picture on wall	horns	disagree
headache and going to the doctor	ailments/doctors	agree
throat hurting	---	disagree
work/shopping	work	agree
cutting hair	shopping/other activities	disagree
throat hurt/doctor	ailments/doctor	agree
sleep/dreams	sleep/dreams	agree
plants/garbage	plants/chores	agree
dreams	dreams	agree
don't know	number 1	disagree
don't know	don't know/maybe A.'s shirt	agree
greeting	greeting	agree
lunch good	good	agree
don't know	don't know/yeah/no	agree
don't know	don't know/something A. said	agree

Coder 1 Topic	Coder 2 Topic	Agreement
excuse me	excuse me	agree
eye contact	eye contact	agree
excuse me	excuse me	agree
eye contact	eye contact	agree
no interaction	no interaction	agree
greeting	greeting	agree
greeting	greeting	agree
Christmas party/ K.'s tree	Christmas	agree
weather	weather	agree
exercise	exercise	agree
watch	watch for Christmas	agree
greeting	greeting B.	agree
going out to eat	going out	agree
Doris hot?	getting hot	agree
food for Christmas	food	agree
housekeeper's name	name	agree
K's engagement	K engaged	agree
leaving/greeting	good legs	disagree
W's hair	hair	agree
working/ can't talk prompt	have to work	agree
pictures in magazine	magazine	agree

Coder 1 Topic	Coder 2 Topic	Agreement
sugar for coffee/ napkin for spill/ manners/coffee	coffee/cleanup	agree
L. about coffee	---	disagree
working/can't talk	prompt/ can't talk	agree
greeting exchange	future events	disagree
plans for tomorrow/pick up D.	future events	agree
getting married	---	disagree
W. something	something	agree
D.'s work	paper work	agree
eating ice cream	ice cream	agree
W. something	something	agree
D.'s work	paper work	agree
graduation/birthday/ age	graduating/persons' ages	agree
finding a job	jobs	agree
J. & W.'s ages	age	agree
milk carton	milk carton	agree
greeting	greeting	agree
High school ring & graduation	class ring/ graduation	agree
getting soda & money for soda	soda	agree

Coder 1 Topic	Coder 2 Topic	Agreement
yes/thank you/using manners	---	disagree
trouble with soda machine	purchasing soda	agree
saving money for soda	save money/soda later	agree
going to Restaurant	Restaurant trip	agree
J.	J.	agree
laundry room work	laundry	agree
liking L. & A./out to lunch	liking others	agree
fixing W.'s hot dogs	fixing hot dog	agree
MacDonald's	---	disagree
juice/food being consumed	juice	agree
coffee on W.'s coat	coffee on coat	agree
why L. not hungry	---	disagree
what L. did in morning	---	disagree
W.'s health	health	agree
hot dog bun	activity at hand/difficulty with hot dog bun	agree

Coder 1 Topic	Coder 2 Topic	Agreement
graduation	graduation	agree
like the juice	juice	agree
what's new/ haircut	haircut	agree
boyfriend	---	disagree
haircuts	haircut	agree
time of dance	from dancing to time	agree
time	time	agree
what are you doing	activity at hand	agree
prompt	activity at hand	disagree
wedding cake	cake	agree
what	what	agree
time card	time card	agree
time card	time cards	agree
room list	looking for list	agree
work clothes	laundry	disagree
take a break	break	agree
don't know	wish	disagree
pencil	pencil	agree
dryer	dryer	agree
?/holding door	preparing for break	agree
greetings	greeting	agree
who's purse	pocketbook	agree

Coder 1 Topic	Coder 2 Topic	Agreement
snacks	how to spend time during break/snack	agree
money	money for machines	agree
greetings	greetings	agree
excuse me	excuse me	agree
share with G.	shares	agree
coffee/break	coffee	agree
W.'s fall	forgiveness	disagree
time	time	agree
Don't know	Okay	disagree
L.'s moving, why?	activity at hand	agree
G.'s burp	manners	disagree
us doing observation	being funny	disagree
coffee	coffee	agree
going to the park/ walking the dog	park/walk	agree
T.'s likes	home activities/get up and get dressed	disagree
people at Restaurant	lunch crowd	agree
watching tv	tv	agree
dog walk	dog for walk	agree
T.'s pets	pets	agree
prompt	directions given	agree
pet	pets	agree

Coder 1 Topic	Coder 2 Topic	Agreement
getting up in a.m.	work time	disagree
clothing	sweater	agree
work at Truck Stop	2 hours	disagree
resting	rest bones	agree
M.'s diet	diet	agree
time	time	agree
Restaurant	Restaurant	agree
dieting	diet	agree
W./going home	W.	agree
clothes/weather/ white sweater	sweater/weather	agree
B.'s lunch/pizza/ bologna and cheese/ pizza	food	agree
time	time	agree
diets/coffee	food/coffee	agree
trips	being a trip	agree
weather	back trouble	disagree
eating	food	agree
mayonnaise	condiments	agree
E.'s soda	soda	agree
white/dark meat	chicken	agree
T.'s want chicken	chicken	agree
---	money	disagree

Coder 1 Topic	Coder 2 Topic	Agreement
eye contact	prompt	agree
mad	pushing T.'s hand	disagree
G.'s hand in way of screen	hand	agree
weekend/L. and baby	friends and weekend activity	agree
going to work in the morning	future events	agree
getting rid of trash	trash	agree